Express5800/320Ma:
Technical Reference Guide

NEC Solutions (America), Inc.
NR550

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Preface

Purpose of This Manual

The *Express5800/320Ma: Technical Reference Guide* provides technical reference information for Express5800/320Ma 3.2 GHz, 3.6 GHz, and Dual-Core systems.

Audience

This manual is intended for those who administer or troubleshoot Express5800/320Ma 3.2 GHz, 3.6 GHz, and Dual-Core systems.

Notation Conventions

This document uses the notation conventions described in this section.

Warnings, Cautions, and Notes

Warnings, cautions, and notes provide special information and have the following meanings:

WARNING

A warning indicates a situation where failure to take or avoid a specified action could cause bodily harm or loss of life.

CAUTION

A caution indicates a situation where failure to take or avoid a specified action could damage a hardware device, program, system, or data.

NOTE

A note provides important information about the operation of an Express5800/320Ma system.

Typographical Conventions

The following typographical conventions are used in Express5800/320Ma documents:

- The bold font emphasizes words in text or indicates text that you type, the name of a screen object, or the name of a programming element. For example:

  Before handling or replacing system components, make sure that you are properly grounded by using a grounded wrist strap.

  In the **System Properties** dialog box, click the **Hardware** tab.

  Call the **RegisterDeviceNotification** function.

- The italic font introduces new terms and indicates programming and command-line arguments that the user defines. For example:

  Many hardware components are *customer-replaceable units* (CRUs), which can be replaced on-site by system administrators with minimal training or tools.

  copy *filename1 filename2*

  Pass a pointer for the *NotificationFilter* parameter

- The monospace font indicates sample program code and output, including message text. For example:

  ```
  #include <iostream.h>
  ```

  ```
  The operation completed successfully.
  ```

Getting Help

If you have a technical question about Express5800/320Ma hardware or software, try these online resources first:

- **Online support from NEC Technical Support.** You can find the latest technical information about an Express5800/320Ma through online product support at the NEC Technical Support Web site:

  http://support.necsam.com/servers/

- **Online product support for Microsoft® products**. Your primary source for support is the computer manufacturer who provided your software, or an authorized Microsoft Support Provider. You can also find the latest technical information about Microsoft Windows® and other Microsoft products through online product support at the Microsoft Help and Support Web site:

  http://support.microsoft.com/

If you are unable to resolve your questions with the help available at these online sites, and the Express5800/320Ma system is covered by a service agreement, please contact NEC Technical Support (866-269-1239).

Notices

- All regulatory notices are provided in the site planning guide for your system.
- Although this guide documents modem functionality, modems are not available for all systems. Ask your sales representative about modem availability.
- ActiveService Network (ASN) is not currently available, but may be ordered in the future.

Chapter 1
ftServer Drivers and Services

This chapter provides technical reference information about ftServer drivers and ftServer services.

ftServer drivers

This section provides technical reference information for the Board Instance driver, Fibre Channel (FC) driver, SCSI port duplex driver, Intelligent Platform Management (IPMI) driver, ftServer ATI Video Driver, sravtmmb.sys, sravtmdp.sys, and srasata.sys.

Board Instance Driver

The Board Instance driver (srabid) computes the overall state of the element, including enclosed components, to determine whether the element can be safely brought online or taken offline. It also gathers information about PCI devices and PCI functions in the system so that you can use ftServer Management Console (ftSMC) to view information about and control PCI adapters.

Fibre Channel Drivers

The Fibre Channel PCI Adapter requires the FC driver srau529.sys.

The FC driver:

- Supports dynamic insertion and removal of FC disks
- Interfaces with Windows HAL, PnP Manager, and SCSI Port Duplex driver
- Maintains information about the Fibre Channel PCI Adapter properties, including the fault-tolerant state. It returns appropriate error codes to the SCSI port driver in case of hard disk and adapter failures.
- Supports dynamic insertion and removal (hot-plug PCI) of I/O elements that contain PCI adapters

For information about the drivers for EMC Fibre Channel (FC) storage systems, see the EMC documentation supplied with your storage system. Also, refer to the EMC Web site for the latest driver updates approved and qualified by EMC for your Express5800/320Ma system.

SCSI Port Duplex Driver

The SCSI Port Duplex driver:

- Provides redundant paths to disk devices on a Fibre Channel PCI Adapter ports.
- Handles error recovery.

fIPMI Driver

The IPMI driver (sraipmi) is an Intelligent Platform ftServer Management device driver for the Baseboard Management Controller (BMC). This driver provides an interface between the BMC and the system management software.

ATI Video Driver

The ATI Video driver controls the video display on systems with embedded ATI video adapters and supports fault-tolerance at the software level. It comprises three files:

- sra_atim.sys, the miniport driver
- sra_atid.dll, the display driver
- sra_ati.inf, the plug and play information file

Virtual Technician Module (VTM) Mailbox Driver

The sravtmmb.sys driver, the Virtual Technician Module (VTM) mailbox driver, is the Express5800/320Ma system's primary communication interface with the VTM. The system typically uses the mailbox driver for firmware burns, device polling, and device configuration. Also, the ASN service uses the mailbox driver to configure parameters for system calls over the ActiveNetwork Service.

VTM Dump Driver

The sravtmdp.sys driver, the VTM dump driver, controls the process of getting a dump of VTM adapter memory and registers. The host initiates a dump in the event of a heartbeat failure or other errors from the VTM. VTM initiates a dump of itself if it detects a fatal error. You can also request a dump from the VTM Homepage.

srasata.sys Driver

The srasata.sys driver controls the SATA internal disks. It does the following:

- Supports dynamic insertion and removal of SATA disks.
- Interfaces with Windows Hardware Abstraction Layer (HAL), plug-and-play (PnP) Manager, and the SCSI Port Duplex driver.
- Maintains information about the SATA adapter's properties, including the fault-tolerant state. It returns appropriate error codes to the SCSI Port Duplex driver in the event of hard disk or adapter failures.

ftServer services

Express5800/320Ma systems have a layer of software fault-tolerant services that run as Windows-based services. These services constantly monitor for, and respond to, hardware problems. The name of each service is listed, followed by its executable name (as seen in task manager) and a short description.

- **Alarm** (Sra_Alarm.exe) sends notice of alarm conditions to various locations that can include NEC Technical Support or your service representative, and a customer's pager or email.
- **eService** (eService.exe) copies BMC events into the Windows Application event log. It also provides an interface to the BMC for environmental sensor related tasks.
- **Inventory** (Sra_Inventory.exe) manages the inventory of hardware and software on the system.
- **Maintenance and Diagnostics** (Sramad.exe) monitors and controls hardware and software modules that participate in the added value functions. This service is required for Active Upgrade software to function. It performs the following:
  - Automatically restarts devices after a transient fault
  - Computes safe-to-pull state of devices working in partnership
  - When possible, sets the LEDs of devices to indicate their state

  - Collects information about the system and generates state change information
  - Controls system hardware to bring up and bring down devices
  - Generates traces for use in troubleshooting problems.
  - Initiates PnP enumeration when required

- **Policy** (Policy.exe) identifies alarm conditions by filtering and correlating Express5800/320Ma hardware and software events.
- **Provider Manager** (Srasvc.exe) provides enhanced reliability of ftSMC monitoring capabilities by isolating Express5800/320Ma system providers from faults in either Windows Management Instrumentation (WMI) or third party providers.
- **RAS** (Sra_Ras.exe) handles connections to the ActiveService Network (ASN) hub for systems that do not have VTMs.
- **RPC Provider** (Rpcprov.exe) stores and retrieves information to and from the Sra_Ras service (for systems without VTMs) or to the VTM.
- **Software Availability Manager** (sraSAMService.exe) monitors system performance and critical events and sends alerts based on user-defined threshold parameters.
- **SSN** (Sra_Ssn.exe). On Express5800/320Ma systems, the ActiveService Network (ASN) service synchronizes VTM adapter settings with the host, enabling a communication path between VTM drivers and host, and enabling ASN communication.
- **Storage Manager** (Srasvc.exe) monitors the fault-tolerant state of storage subsystems and provides that information to ftSMC.
- **Storage Manager** (Srasvc.exe -group local) provides system management for storage devices.
- **Sysmgt Startup** (Sra_SysmgtStartup.exe) initiates setup for System Management services.

Chapter 2
Express5800/320Ma System Features

This chapter provides technical reference information for the following Express5800/320Ma 3.2 GHz, 3.6 GHz, and Dual-Core system features:

- Configuring an ftGateway group manually
- Managing mean time between failures (MTBF) statistics
- ftServer Manager event handling
- A detailed description of the ASN connection retry cycle

Administering an ftGateway Group Manually

Normally, you use the ActiveService Manager to configure a system's relationship to an ftGateway group. This ensures that NEC Technical Support database will match the configuration of your Express5800/320Ma's ftGateway. See the *Express5800/320Ma ActiveService Network Configuration Guide* for information about configuring ASN connectivity using an ftGateway Group.

However, under certain circumstances, you may be asked by NEC Technical Support or your service representative to administer an ftGateway group manually. Refer to the information in this section to administer an ftGateway group manually.

Table 2-1 describes the four actions associated with the **ftGateway Group** node.

Table 2-1. ftSMC System Inventory Component Actions

Action	Description
Create ftGateway Group	Creates a new ftGateway group using a customer-supplied name for the group.
Join ftGateway Group	Adds a slave system to an existing ftGateway group.
Leave ftGateway Group	Removes a slave system from an ftGateway group.
Remove ftGateway Group	Removes an ftGateway group. You must remove all slave systems from the group prior to executing this action.

To create a new ftGateway group

1. Access the system that is to be the gateway system. Start ftSMC.
2. In ftSMC, double-click the **ftServer Configuration** node to expand the child nodes beneath it.
3. Right-click the **ActiveService Network** icon and click **Create ftGateway Group**.
4. In the **Create ftGateway Group on ActiveService Network** dialog box, type the name you want to give the ftGateway group in the **Group Name** box.
5. In the **Create ftGateway Group on ActiveService Network** dialog box, type the password you want to use to access the ftGateway group in the **Group Password** box. Click **Finish**.

To add a slave system to an ftGateway group

1. Access the slave system that you want to add to the ftGateway group. Start ftSMC.
2. In ftSMC, double-click the **ftServer Configuration** node to expand the child nodes beneath it.
3. Right-click the **ActiveService Network** icon, and click **Join ftGateway Group**.
4. In the **Join ftGateway Group on ActiveService Network** dialog box, type the name of the ftGateway group that you are joining in the **Group Name** box.
5. In the **Join ftGateway Group on ActiveService Network** dialog box, type the ftGateway group password in the **Group Password** box.
6. In the **Join ftGateway Group on ActiveService Network** dialog box, type the value of the gateway machine's ftGateway IP Addresses[1] property in the **Gateway IP Address 1** box.
7. In the **Join ftGateway Group on ActiveService Network** dialog box, type the value of the gateway machine's ftGateway IP Addresses[2] property in the **Gateway IP Address 2** box.
8. Click **Finish**.

To remove a slave system from an ftGateway group

1. Access the slave system that you want to remove from the ftGateway group. Start ftSMC.
2. In ftSMC, double-click the **ftServer Configuration** node to expand the child nodes beneath it.
3. Right-click the **ActiveService Network** icon and click **Leave ftGateway Group**.

To remove an ftGateway group

1. Access the Express5800/320Ma gateway system. Start ftSMC.
2. Be sure to remove all slave systems from the ftGateway Group.
3. In ftSMC, double-click the **ftServer Configuration** node to expand the child nodes beneath it.
4. Right-click the **ActiveService Network** icon and click **Remove ftGateway Group**.

Managing MTBF Statistics

This section describes how the MTBF is calculated and how to display, clear, and set the MTBF threshold. For information about the hard and soft errors that trigger the system to evaluate the MTBF, see “Error Detection and Handling” on page 2-3.

The values stored in the registry are:

- MtbfSerialNumber: Allows the system to detect if the board is new or different, and to clear the MTBF. This value is used on a reboot and driver upgrade to maintain MTBF statistics if the same board is in place; for the board replacement case, the MTBF is cleared.
- MtbfThreshold: In seconds, the value below which an event is triggered
- MtbfCurrent: In seconds, the current MTBF value
- MtbfTimeOfLastFault: The date and time of the last fault
- MtbfNumberOfFaults: The total number of faults for this device
- MtbfThresholdStatus: Indicates if the disk has experienced disk errors for which calls home were generated. Usually set to “Normal”. When the disk experiences an 01/5D or an 03/11 error, it is set to “Above critical threshold”.
- MtbfFaultLimit: The number of errors that can occur before an alarm is generated. The default value is 1.

The system maintains MTBF statistics for these devices:

- CPU elements
- I/O elements
- Virtual Technician Modules (VTMs)
- Ethernet adapters

Error Detection and Handling

Hardware errors are detected by the hardware and then evaluated by the maintenance and diagnostic software. After a hardware error, the software directs the affected

device to test itself. If the device fails the test, the error is a **hard error** and the device is taken out of service. If the device passes the test, the error is a **soft error**.

The system takes the device out of service and places it in the Broken state under these circumstances:

- The error is a hard error.
- The error is a soft error, and the MTBF is less than the MTBF threshold for the device.

If the error is a hard error and the MTBF is greater than the MTBF threshold, the system attempts to enable the device and return it to service.

MTBF Calculation and Effects

The system does not calculate the MTBF until the total error count equals a minimum number, and then it uses the recorded times of the last minimum number of errors to calculate the MTBF. If the MTBF has not yet been calculated, the system considers the MTBF value unreliable and acts as if the MTBF is greater than the threshold.

For each error that occurs, the system performs certain calculations. For each hard error, the system records the time of the error and increments the total error count. Then the system takes the device out of service and places it in the Broken state. Finally, the system calculates the MTBF and compares it with the threshold. One of two actions occurs:

- If the MTBF is less than the threshold, the system leaves the device in the Broken state.
- If the MTBF is equal to or greater than the threshold, the system attempts to enable the device and return it to the DeviceReady state.

MTBF Calculation

The calculation of the new the MTBF is as follows:

$$MTBF = \frac{CurrentMtbf * (FailureCount - 1) + TimeSinceLastFailure}{FailureCount}$$

For the MTBF to be below the threshold, the **FailureCount** must be equal to or greater than 3, and the calculated the MTBF must be below the threshold. For example, Table 2-2 shows the progression of failures causing recalculation of the MTBF. The MTBF threshold in this example is 600, so the device is removed from service when the new MTBF is less than 600, or 517 in the example.

Table 2-2. Example MTBF Calculation

Current MTBF	Failure Count	Time Since Last Failure	New MTBF
1000	3	500	833
833	4	300	700
700	5	200	600
600	6	100	517

Displaying MTBF Information

To display the current MTBF information for a device in the details pane, you can select the device in the console tree of ftSMC. The following example shows the time of the last fault, the MTBF Threshold, the number of faults, and the current MTBF value.

```
MTBF: Type              Use Threshold
MTBF: TimeOfLastFault   May 30, 2004 15:07:24
MTBF: Threshold         300 seconds
MTBF: NumberOfFaults    2
MTBF: Current           532220 seconds
```

An out-of-service hardware device remains out of service until you clear the MTBF or change the MTBF threshold. Inserting a new device clears the MTBF.

A value of 0 (Unknown) for **MTBF: Current** indicates that the device has not failed enough times to be able to calculate the MTBF.

Changing the MTBF Threshold

The MTBF threshold is expressed in seconds. If a device's MTBF falls beneath this threshold, the system takes the device out of service and changes the device state to Broken.

CAUTION

Express5800/320Ma presets the MTBF thresholds. You should not modify them unless instructed to do so by NEC Technical Support or your service representative.

If you change the MTBF threshold for a device, the device is not affected until another failure occurs. For example:

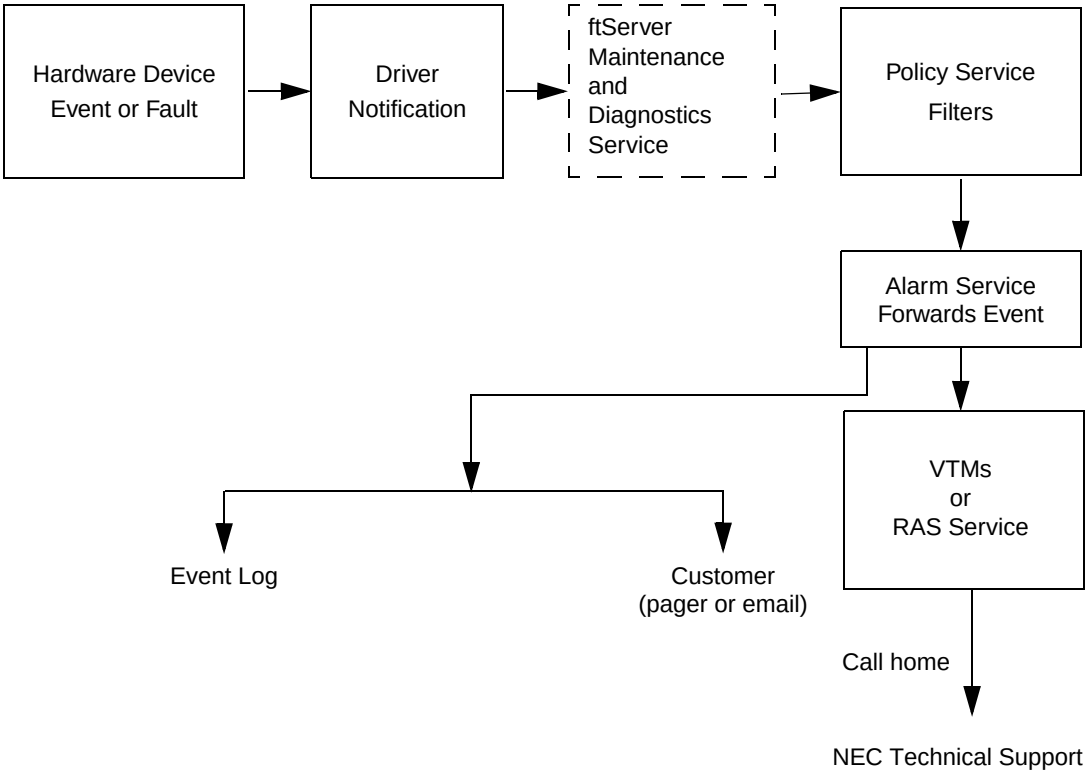
- If you increase the threshold for a device whose state is currently Broken, you must enable the device so that it can return to service. The system will not change the state of the device automatically.
- If the device's actual MTBF is less than the new threshold (meaning that failures occur more often than the threshold allows), and the device is enabled, the system will not recalculate the MTBF and take the device out of service until another failure occurs that causes the new, actual MTBF to be below the threshold.

To change the MTBF threshold for a device, right-click the device, click **Set MTBF Threshold**, and enter a new threshold value in seconds.

ftServer Manager Event Handling

As shown in Figure 2-1, when a hardware device fault or event occurs, the device's driver sends those events to the Express5800/320Ma Policy service, which determines whether the events are significant or not. Significant events are forwarded to the Alarm service for processing. The dotted lines around the Maintenance and Diagnostic Service box in Figure 2-1 indicate that the service does not manage all devices. It does manage, for instance, CPU elements, DIMMs, processors, I/O elements, and PCI adapters.

Figure 2-1. ftServer Manager Event Handling



ASN Connection Retry Cycle

After a failed attempt to connect with the ASN, the system will make repeated attempts to call the ASN until it is successful. If your system is located in an area where North American toll-free numbers cannot be used, this can result in costly phone bills. You

can adjust the parameters described in Table 2-3 to increase the time between phone calls, and thereby reduce the number of attempted calls.

If an attempt to establish an ASN connection fails, ftServer Manager can attempt to send the alarm over the Internet if the Send Alarms By property is configured for Internet backup. ftServer Manager also continues to attempt to establish an ASN connection. All of the parameters in Table 2-3 work together to control how many attempts ftServer Manager makes to establish the ASN connection. They also control the length of time between attempts. Table 2-3 shows the default values for these parameters.

Table 2-3. Default Settings for Alarm Re-send Parameters

Parameter	Default
Short Idle Time Between Re-sends	600 (10 minutes)
Short Idle Re-send Count	3 attempts
Medium Idle Time Between Re-sends	14400 (4 hours)
Medium Idle Re-send Count	6 attempts
Long Idle Time Between Re-sends	88000 (24 hours, 26 minutes, and 40 seconds)
Long Idle Re-send Count	No limit on number of attempts

The following example illustrates the ASN connection retry cycle with default parameter values:

Initial attempt to establish connection fails.

Retry 1: Wait 10 minutes, and then try again. This is the 1st 10-minute wait.
Retry 2: Wait 10 minutes, and then try again. This is the 2nd 10-minute wait.
Retry 3: Wait 10 minutes, and then try again. This is the 3rd and last 10-minute wait.

Retry 4: Wait 4 hours, and then try again. This is the 1st 4-hour wait.
Retry 5: Wait 4 hours, and then try again. This is the 2nd 4-hour wait.
Retry 6: Wait 4 hours, and then try again. This is the 3rd 4-hour wait.
Retry 7: Wait 4 hours, and then try again. This is the 4th 4-hour wait.
Retry 8: Wait 4 hours, and then try again. This is the 5th 4-hour wait.
Retry 9: Wait 4 hours, and then try again. This is the 6th and last 4-hour wait.

Retry 10: Wait 24 hours, and then try again. This is the 1st 1-day wait.

ftServer Manager continues to make connection attempts every 24 hours.

If an additional alarm condition occurs during one of the Medium Idle Time Between Re-sends or Long Idle Time Between Re-sends periods, ftServer Manager interrupts the current cycle. ftServer Manager then attempts to establish an ASN connection according to the settings of the Short Idle Re-send Count and Short Idle Time Between Re-sends parameters. If these attempts are not successful, ftServer Manager resumes making attempts according to the settings of the Medium-Idle or Long-Idle Re-send Count and Medium-Idle or Long-Idle Time Between Re-sends parameters.

For example, suppose that ftServer Manager failed to establish a call-home connection and that the next attempt is scheduled to occur three hours from now, due to either a 24-hour or 4-hour wait period. If an additional alarm condition occurs, ftServer Manager immediately attempts to establish an ASN connection three times with a 10-minute wait between attempts. If still unsuccessful, the original cycle resumes at the point it was interrupted with the next dial attempt occurring three hours later.

Chapter 3
ftSMC Component Properties and Actions

This chapter describes a number of the properties and actions associated with ftSMC system inventory components.

ftSMC Component Properties

Table 3-1 describes many of the properties of ftSMC system inventory components. For component properties not described in the following table, use What's this? Help in ftSMC details pane for information.

Table 3-1. ftSMC System Inventory Component Properties

Property	Description
ActiveCompatibilityFlag	Specifies whether the I/O element is active (True) or inactive (False). The active element is the one that contains the active device of a pair of devices, the other of which is installed on the inactive I/O element.
ActiveRDRPlex	The address of the path that is the current active RDR plex.
AdapterDeviceName	Express5800/320Ma part number and description of PCI adapter.
ASN For Call-home	Displays the numerical designation of the current active ASN configuration. VTMs and ftSMC obtain the parameters for a call home by reference to this property. The parameters in the active ASN configuration are then used to establish a connection to the active ActiveService Network (ASN), whether it is the NEC Technical Support. The default active ASN configuration is 1. See the **Set as Active ASN** action in Table 3-2.
AutoBringUpEnabled	Brings a new CPU element in the system into service immediately if this is enabled. The valid choices are True or False, with True (enabled) as the default.

Table 3-1. ftSMC System Inventory Component Properties *(Continued)*

Property	Description
AutoBurnEnabled	If enabled for a CPU element, matches a new CPU element's BIOS with that of the existing element when you insert a partner CPU element that has a different BIOS version than the existing element. The valid choices are True or False, with True (enabled) as the default. Insert new elements only while the system is running. See also **Update Firmware** in Table 3-2. You can check the BIOS versions in ftSMC. For a VTM, specifies if automatic burning is enabled. If so, the existing firmware revision will be burned to a new VTM that is added to the system. Set to false by default.
Availability	The availability of the device. For the Express5800/320Ma embedded 7174 SATA controller, possible states are running with full power (value of 3), warning (4), test (5), degraded (10), power save (13-15 and 17). See What's this? Help in ftSMC for more detail.
BackplaneCfg	The storage enclosure's backplane configuration (joined-bus or split-bus).
BIOS: Version	The BIOS version assigned by NEC Solutions (America), Inc.
BIOS: VendorVersion	The BIOS version assigned by the BIOS vendor.
Brand	A description of the type of processor in the CPU element.
Call-home Enable	Determines whether the system is enabled to generate call-home messages (True) or not (False). If this is disabled, the system does not send any messages or system inventory reports to the ASN. Enabled by default.
Call-home IP Address	Displays the ASN IP address after the connection is made (for example, 192.168.78.99); otherwise, it is a null value (0.0.0.0).
Call-home Licensed	Indicates whether the system has a valid license to generate call-home messages. Valid values are True or False.
Call-in Enable	Indicates whether VTM accepts calls from the ASN. If this is disabled, VTM does not answer the telephone. Enabled by default. Valid values are True (enabled) or False (disabled).
Capacity	The data capacity of a physical disk drive (or plex in RDR) or of a virtual RDR disk, usually expressed in gigabytes (GB).
Caption	A short textual description of the object.
Chipset: BusNumber[1]	The numerical designation of the bus.
Chipset: BusWidth[1]	The data width of the bus in bits.

Table 3-1. ftSMC System Inventory Component Properties *(Continued)*

Property	Description
Chipset: Mhz66Capable[1]	Indicates whether the PCI bus operates at 66 MHz (True) or not (False).
Chipset: NumberOfBuses	The number of buses.
Chipset: TotalSystemMemoryMb	Total amount of system memory.
Chipset: Type	The type of chipset used in the CPU element.
City	City or town where your company is located.
Class Code	The type of device or adapter in this location.
Company Name	The name of the company that owns this system.
ConfigData	Specifies whether ESCD data should be cleared on the next reboot of the system.
ConfigManagerErrorCode	The Win32Configuration Manager error code. Use What's this? help in ftSMC for details.
ConfigManagerUserConfig	Indicates whether the device is using a user-defined configuration.
ConfigState	State information of an RDR virtual disk plex. An RDR disk can be Configured/Unconfigured. If it is configured, it could be active or inactive, imported or deported.
Connection Status	Status of the ASN connection. Values are Off, On, and In process.
Connection Timeout	Maximum amount of time, in seconds, that ftServer Manager waits for a system to make each dial-out attempt. Default is 180 seconds (3 minutes). When a system attempts to make a connection to the ASN, ftSMC waits a period of time, defined by Transmit Timeout, for the system to signal the status of the connection.
Country	Country where your company is located.
CpuBringUpPolicy	Specifies whether CPU bringup is enabled, disabled (deferred) and simplex CPU operation is allowed, or disabled and simplex CPU operation is not allowed. This property is set by means of the **Schedule CPU BringUp Options** action, which is described in Table 3-2.
CreationClassName	The name of the class or the subclass used in the creation of an instance. When used with the other key properties of this class, this property allows all instances of this class and its subclasses to be uniquely identified.

Table 3-1. ftSMC System Inventory Component Properties *(Continued)*

Property	Description
Current Count	The current MTBF value for a device. A 0 or Unknown value means that the device has not failed often enough to calculate MTBF data.
CurrentReading	Specifies the current value of a sensor. Depending on the sensor, values are in degrees Celsius (^{O}C) for temperature sensors, millivolts (mV) for voltage sensors, revolutions per minute (rpm) for fan speed sensors, or milliamperes (mA) for current sensors.
Customer Contact Name	Contact person in your company who is responsible for the system.
Customer Email	Email address of your company contact.
Customer Pager	Pager number of your company contact.
Customer Phone	Telephone number of your company contact.
DebugFlags:Irql DebugFlags:Thread	When these flags are enabled, debug trace messages printed using these flags will be logged.
DefaultGateway	For systems equipped with VTMs. The IP address of the default gateway used for traffic that goes to a network for which the adapter has no route (for example, to NEC Technical Support or other service representative, in communication from the system to the adapter).
Defer Bringup	Defers the automatic return-to-service of the CPU element (CPU bringup) to a more convenient time.
Description	A description property that helps you identify a particular ASN configuration.
DeviceID	An address or other identifying value that uniquely names a logical device.
DevicePath[n]	A string of slash-separated DeviceIDs that shows the relationship of a device within a hierarchical ordering of devices. The **DevicePath** property shows what other devices a particular device is connected to, or is a child of.
DevicePathID	Device identifier used to physically locate hardware components within a system. A DevicePathID is a string of decimal numbers such as 10/5/0/2. For a virtual disk, the DevicePathID does not indicate a hardware component, but instead identifies the virtual disk to system management software.
DiagScreen	Specifies whether the BIOS Diagnostics screen should be displayed during the boot process.

Table 3-1. ftSMC System Inventory Component Properties *(Continued)*

Property	Description
Diag Status: FailingTestNumberr	If diagnostic test(s) failed, the number of the diagnostic test(s) that failed.
Diag Status: NumberOfFailedTests	The number of errors encountered. See the system event log for a description of the errors.
Diag Status: TimeOfLastRun	Date and time when diagnostics most recently ran.
DiagnosticStatus	The VTM diagnostic status.
Dial-in Password	Password used to authenticate a dial-in user name.
Dial-in User Name	Dial-in user name used to identify the ASN dialing in. After the system authenticates the name, the system hangs up and dials the ASN.
Drive	The drive letter, including the colon, of the file.
DriverName	The driver file name of the device.
DriverServiceName	Name of the service supporting this driver.
DriverVersion	Version number of the driver.
DumpNumberOfFilesToSave	Sets the number of dump files to save to disk for a system dump. For example, if this value is 2, the last two dump files (Memory0.dmp and Memory1.dmp) are saved and the third dump file overwrites the first. Thus, you need to reserve disk space of the size of memory times this number for the dump files. The valid range is 1 to 5, and the default is 2.

Table 3-1. ftSMC System Inventory Component Properties *(Continued)*

Property	Description
DumpQuickEnabled	Controls the operation of a system crash dump. All of the system memory may be dumped, depending on what you specify for the type of memory dump. Therefore, you need to reserve disk space for the dump. See also DumpNumberOfFilesToSave. The valid choices are True or False, with True (enabled) as the default. If **DumpQuickEnabled** is disabled or if the CPU element is in simplex mode, the normal Windows dump mechanism is used. If **DumpQuickEnabled** is enabled and CPU elements are in duplex mode, one CPU element is held in the Broken state and the remaining element(s) will be rebooted. After the system is running again, the broken element is dumped and returned to service if AutoBringUpEnabled is enabled. If **DumpQuickEnabled** is disabled and CPU elements are in duplex mode, the system will attempt to obtain both kinds of dumps; that is, one CPU is held in the Broken state, and a normal Windows dump is initiated. Upon reboot, the Broken element is dumped and returned to service. If two dumps are produced, the normal Windows dump will be deleted, as it is redundant.
DumpsToSave	Specifies the maximum number of VTM memory dumps to retain. The default is 1. Memory dumps are 16 MB. If DumpsToSave is specified as 0, no dumps are created. The dump occurs if VTM crashes. The dump is saved to %SystemRoot% with the file name smmmem*x*.dmp, where *x* is the dump number derived from LastGoodDump and DumpsToSave.
Duplex	Describes how the Ethernet adapter sends and receives packets when connected to the Twisted-Pair Ethernet (TPE) connectors. Settings are: **Auto** (default) - negotiate with the switch or hub to determine the best mode. **Half** - half duplex performs one operation (either send or receive) at a time. **Full** - full duplex sends and receives packets at the same time.
ECC Info: HardErrors	Number of uncorrectable errors detected.
ECC Info: IntermittentHardErrors	Number of correctable errors reported for the same bit.
ECC Info: SoftErrors	Number of correctable errors detected.
ECC Info: ThresholdExceeded	Indicates whether an error threshold has been exceeded. If this property is false, nonzero counts should not be considered errors.
ECC Info:TotalEccErrors	Number of ECC errors detected.

Table 3-1. ftSMC System Inventory Component Properties *(Continued)*

Property	Description
EccMinutesToComplete	Sets the time, in minutes, to complete a single check (read followed by write if an error is detected) of all memory. The valid range is 10 to 10,080 minutes (7 days), and the default is 1440 minutes (1 day).
EccThreshold	Sets the threshold number of errors that sends an ECC call-home message. The range is 19 to 512 errors, and the default is 128.
Enable Bringup	Returns a CPU element to automatic return-to-service mode.
Enabled	If True, NEC Technical Support or your service representative designated by this ASN is allowed to dial in, and the ASN referenced in the ASN For Call-home property is allowed to call home. Valid values are True (enabled) or False (disabled). The default is False (disabled).
Encrypt Http Over Internet	If enabled, encrypts data when sending an alarm over the Internet. Disabled by default. Valid values are True (enabled) or False (disabled).
Encrypt Ignoring Unknown CA	Indicates whether the system should accept an SSL certificate that was issued by an untrusted certificate authority's root certificate. If true, accepts unknown CA when sending an encrypted alarm over the internet.
EventMessageBufferEnabled	Enables (True) or disables (False) the event message buffer.
EventMessageBufferFullInterruptEnabled	Enables (True) or disables (False) the event message buffer full interrupt.
FirmwareRevision	Displays the firmware revision of the BMC.
ftGateway Group ID	Defines a particular ftGateway group.
ftGateway Group Name	The customer-supplied name of an ftGateway group.
ftGateway IP Addresses[1]	Specifies one of two network IP addresses that the gateway machine uses to communicate with other members of the ftGateway group.
ftGateway IP Addresses[2]	Specifies one of two network IP addresses that the gateway machine uses to communicate with other members of the ftGateway group.
ftGateway Password	The customer-specified password required for communications between ftGateway group members.
Express5800/320Ma Release	The Express5800/320Ma System Software release number.
Express5800/320Ma Version	The Express5800/320Ma System Software version designation.

Table 3-1. ftSMC System Inventory Component Properties *(Continued)*

Property	Description
FwVersion	The version of the firmware running on an VTM.
GlobalRdrPlexLoadBalancing	An RDR property that manages read-road balancing globally.
GlobalResyncPriority	Specifies the relative priority (Low, Normal, or High) of the resynchronization process to other processes in the system. Default: Normal.
Group Type	The type of system management modules (SSMs) in the ftGateway group, namely, VTMs.
Heartbeat Interval	This property is the time, in seconds, that a slave machine in an ftGateway group waits before issuing another heartbeat signal. The default value is 900 seconds (15 minutes).
HighResynchPriorityMbs	The high value for I/O bandwidth to disk, a portion of which will be used for RDR disk resynchronization operation. The default value of this property is 35Mbps.
Host XML Port Number	The XML port number for the TCP server running on the host. VTMs communicate with the host by sending XML commands to this server.
HTTP Absolute Path	The path of the HTTP object to which to send an alarm message. For example, if alarm messages are posted to URL http://callhome/callhomeservice.asp, this field has the value /callhome/callhomeservice.asp.
Http over internet Enabled	If enabled, ftServer Manager attempts to send messages using HTTP over the Internet after failing to establish a connection to the ASN through the external modem. Enabled by default. Valid values are True (enabled) or False (disabled).
IDPROM: ArtworkRevision	This type of PROM, located on boards manufactured by NEC Solutions (America), Inc, contains board identification information.
IDPROM: ECOLevel	This type of PROM, located on boards manufactured by NEC Solutions (America), contains board identification information.
IDPROM: EEPROMVersion	This type of PROM, located on boards manufactured by NEC Solutions (America), contains board identification information.
IDPROM: MinPartnerECOLevel	This type of PROM, located on boards manufactured by NEC Solutions (America), contains board identification information.
IDPROM: ModelDesc	This type of PROM, located on boards manufactured by NEC Solutions (America), contains board identification information.

Table 3-1. ftSMC System Inventory Component Properties *(Continued)*

Property	Description
IDPROM: ModelName	This type of PROM, located on boards manufactured by NEC Solutions (America), contains board identification information.
IDPROM: SerialNumber	This type of PROM, located on boards manufactured by NEC Solutions (America), contains board identification information.
Internet Call-in Poll Interval	The interval, specified in seconds, that the SMM waits between polling Hub machines to find out if call-in over the Internet is needed. The default value is 300 seconds (5 minutes).
Internet Corruption Re-send Count	The number of re-send attempts ftServer Manager will make before removing the alarm, when an Internet corruption error is received while sending alarms by Internet only.
Internet HTTP Proxy Address	A list of the HTTP proxy server addresses (*host*:*port*) that ftServer Manager uses to send alarm messages over the Internet in a space-delimited string (for example, myproxy1:8080 myproxy2:8080). Set to empty if no proxy is required.
Internet HTTP Proxy Password	The password to access the proxy server.
Internet HTTP Proxy User Name	The user name to access the proxy server.
Internet HTTP Server Address	The HTTP server address (*host*:*port*) that ftServer Manager uses to send alarm messages over the Internet. The host name may be either a domain name (for example, www.necsam.com) or an IP address in ASCII dotted-decimal format (for example, 192.52.248.194). The port number is optional (by default, HTTP is 80 and HTTPS is 443).
Internet Tunnel Server Address	Tunnel server address (<*host*>) that SMM uses for dial-in over the Internet. The host name may be either an FQDN (*inettunel.ecacsupport.com*) or a dotted-decimal IP (134.111.1.21). This address should be equal to the CN field of the Web server certificate (use *inettunel.ecacsupport.com* by default).
IsPrimary	Identifies the primary VTM.
LastGoodDump	For systems equipped with VTMs. Specifies the memory dump number of the last known good dump.
LED State: Yellow LED State: Red LED State: Green LED State: White	Indicates the state of an LED in the system (On, Off, NotPresent, or Cycle). See the operation and maintenance guide for your system for a description of the meanings of the LEDs.

Table 3-1. ftSMC System Inventory Component Properties *(Continued)*

Property	Description
Limit of Event Log Entries	The maximum number of event log entries to include in any message. By default, if the specified interval has more than 256 entries in either the system or the application log, the last 256 entries are sent as part of the message.
Line1	Contains the text on the top line of the front panel LCD.
Line2	Contains the text on the bottom line of the front panel LCD.
LinkDataRate	The current signalling rate of the link.
LinkProtocol	The storage command protocol running on the link.
Long Idle Re-send Count	The number of re-send attempts, separated by Long Idle Time Between Re-sends, that ftServer Manager will make before dropping the current alarm message.
Long Idle Time Between Re-sends	The long idle time, in seconds, between attempts to re-send an alarm. After a number, defined by Medium Idle Time Between Re-sends, of unsuccessful attempts to send an alarm message, ftServer Manager waits this long before it attempts to re-send the alarm. After a number of unsuccessful attempts, defined by Long Idle Re-send Count, ftServer Manager will quit attempting to send the oldest alarm message and move to the next one in the alarm queue.
LowerThresholdCritical	Threshold values specify the ranges for determining whether the monitored component is operating under normal, noncritical, critical, or fatal conditions. Depending on the sensor, values are in degrees Celsius (^{o}C), millivolts (mV), revolutions per minute (rpm), or milliamperes (mA).
LowerThresholdFatal	Threshold values specify the ranges for determining whether the monitored component is operating under normal, noncritical, critical, or fatal conditions. Depending on the sensor, values are in degrees Celsius (^{o}C), millivolts (mV), revolutions per minute (rpm), or milliamperes (mA). This property is not configurable and attempting to change it will display the value of Not Set.
LowerThresholdNonCritical	Threshold values specify the ranges for determining whether the monitored component is operating under normal, noncritical, critical, or fatal conditions. Depending on the sensor, values are in degrees Celsius (^{o}C), millivolts (mV), revolutions per minute (rpm), or milliamperes (mA).
LowResynchPriorityMbs	The low value for I/O bandwidth to disk, a portion of which will be used for RDR disk resynchronization operation. The default value of this property is 5Mbps.

Table 3-1. ftSMC System Inventory Component Properties *(Continued)*

Property	Description
LunFlushInterval	Interval, in minutes, between flushes of the disk write cache. Default is 0, disabled.
LunVerifyInterval	Specifies the frequency with which information on physical disks that are configured as mirrors in an RDR virtual disk are compared to each other. Default: 10800 minutes (7 days)
MachineCheckThreshold	Sets the threshold number of errors that sends a Correctable Machine Check call-home message. The system keeps a record of the number of Correctable Machine Check errors detected per CPU element and whether the threshold has been exceeded. Look at individual processors to see which ones are experiencing problems.
Manufacturer	The manufacturer of the device.
MCA Info: ThresholdExceeded	Indicates if the configured error threshold for Correctable Machine Check errors, has been exceeded.
Medium Idle Re-send Count	The number of re-send attempts, separated by Medium Idle Time Between Re-sends, that ftServer Manager will make before moving to the long idle interval.
Medium Idle Time Between Re-sends	The medium idle time, in seconds, between attempts to re-send an alarm. After a number, defined by Short Idle Re-send Count, of unsuccessful attempts to send an alarm message, ftServer Manager waits this long before it attempts to re-send the alarm. After a number of unsuccessful attempts, defined by Medium Idle Re-send Count, ftServer Manager will wait the amount of time defined by Long Idle Time Between Re-sends before attempting to re-send the alarm message.
Member Status	Identifies whether a system is a member of an ftGateway group or not, and if it is a member, whether it is a gateway or slave machine. The default value is Non-member.
Member Status Confirm	Provides feedback on the **Join ftGateway Group** action, which is described in Table 3-2. It is set to Confirm Pending after executing the **Join ftGateway Group** action. It is then set based on the feedback status from the gateway adapter. The default value is Not Applicable.
MemCheckRate	Sets the rate at which the driver checks memory. The rate is a number from 0 to 9, where 0 is the slowest rate and 9 is the fastest. The default is 5. See **Perform Memory Check**, which is described in Table 3-2.
Messages[n]	Contains the text displayed on the front panel LCD.
Model	The device's model number.

Table 3-1. ftSMC System Inventory Component Properties *(Continued)*

Property	Description
ModelDescription or ModelDesc	The VTM board description.
ModelName	The Express5800/320Ma system name as stored in the system ID PROM. For VTMs, the VTM OEM product number.
Modem Check Interval	The number of seconds that the system waits between checking that the modem attached to the system is functional and checking that a dial tone exists on the phone line. If this value is set to zero, modem checks are disabled. The default is 3600 seconds (1 hour).
Modem Country Code	Telephone calling code for the country where the modem is located (for instance, 1 = USA, 44 = United Kingdom). Select the country from the drop-down list.
Modem Post-Init Commands	Contains additional modem initialization string commands that are sent to the SMM modem after the default initialization string is sent.
Modem Pre-Dial Commands	Contains additional modem dial commands that are sent to the SMM modem immediately prior to the sending of a dial command.
MTBF: Current	Current MTBF in seconds. A value of unknown (0) indicates that the device has not failed enough times for an MTBF to have been calculated.
MtbfFaultLimit	Defines the number of times certain errors can occur before the system sends threshold events that generate alarms.
MTBF: NumberOfEvents	Total number of faults for a component.
MTBF: Threshold	Threshold, in seconds, below which the component will not be automatically brought back into service when it fails. The default is 600 seconds, and the range is 600 seconds to 4,294,967,295 (2^{32}-1) seconds.
MTBF: TimeOfLastEvent	Date and time of the last fault on a component.
MTBF: TimeOfLastFault	Time at which the device last failed.
MTBF: Type	Defines how the threshold value is used when a device fails. Normally Type is set to Use Threshold, which indicates that the threshold value is used to determine whether to automatically bring the device back into service. The NEC Technical Support can set it to Never Restart or Always Restart.
Name	In ASN, the name or designation of each ASN Configuration node. In relation to the SATA embedded adapter, defines the label by which the object is known. When subclassed, the Name property can be overridden to be a Key property.

Table 3-1. ftSMC System Inventory Component Properties *(Continued)*

Property	Description
NegativeGoingHysteris	A value added to a reading to determine if a threshold event has cleared. A value of 0 means that the event clears after the reading drops to one less than High Warning or Critical Threshold.
NormalResynchPriorityMbs	The middle value for I/O bandwidth to disk, a portion of which will be used for RDR disk resynchronization operation. The default value of this property is 20Mbps.
Notify Email Address	The customer email address or addresses to send an email to when an alarm occurs (for example, administrator@company.com). Use a semicolon to separate multiple addresses (for example, admin1@company.com;admin2@company.com). The length of all addresses and their separators in this field must be less than 300 characters.
Notify Final Delay	The amount of time, in minutes, for the User Notification processes to wait after sending email, before sending another one, to allow for multiple alarms to be aggregated and sent at the same time. The default is 10 minutes.
Notify Initial Delay	The amount of time, in minutes, for the User Notification processes to wait before sending email in order to allow for multiple alarms to be sent at the same time. The default is 1 minute.
Notify Pager Number	The customer pager number to send a page to when an alarm occurs.
Notify Proxy Bypass	If the proxy server can be bypassed for local addresses, set this to “local”; otherwise, leave blank.
Notify Proxy Server	The server and port name of the customer proxy server in the format server:port (for example, proxy.customer.com:1234).
Notify Send Old Messages	If True, send any unsent messages at startup. If False, delete any previously unsent messages.
Notify SMTP Auth Mode	Authentication mode for the customer SMTP server. Can be either Anonymous (no authentication required) or Basic (need to supply a user name and password).
Notify SMTP Password	The password for authentication with the customer SMTP server. Used only if Notify SMTP Auth Mode is set to Basic.
Notify SMTP Server	SMTP server to use to notify a customer by email of alarm conditions (for example, mailhub.company.com).
Notify SMTP User Name	The user name for authentication with the customer SMTP server. Used only if Notify SMTP Auth Mode is set to Basic.

Table 3-1. ftSMC System Inventory Component Properties *(Continued)*

Property	Description
Notify SNPP Port	The port number used by the Simple Network Paging Protocol (SNPP) server for sending a page. Default is port 0.
Notify SNPP Server	The IP address of the SNPP server used to send pager messages.
Number of Faults	Total number of times the device has failed.
Num of Missed Polls	Defines how many polls can be missed between a slave machine and the ftGateway machine before the slave machine is determined to be offline.
Number of Retries	Number of times that the system attempts to dial each number in the list of Phone Numbers when attempting to contact NEC Technical Support or your service representative. A value of 1 (the default) indicates that the system calls each phone number only once. A value of zero (0) is invalid.
OEMManufacturer	The original manufacturer of the device.
OEM0Enabled	Defined by OEM or system integrator. Do not change the default setting (False) of this property.
OEM1Enabled	Defined by OEM or system integrator. Do not change the default setting (False) of this property.
OEM2Enabled	Defined by OEM or system integrator. Do not change the default setting (False) of this property.
OnlineCpuPriority	For CPU elements only. The priority at which the CPU is operating. Supported values are High and Medium. The priority of other elements is adjusted accordingly as follows: If the priority of the specified element is increased, the element with the same priority has its priority decreased. If the priority of the specified element is decreased, the element with the same priority has its priority increased.
Op State: Reason	The reason a component is in a particular operational state.
Op State: Reason None	Indicates that there is no reason associated with the current state.
Op State: Reason Below MTBF	The current MTBF is below the MTBF threshold specified for this component.
Op State: Reason Diagnostics Failed	This component failed diagnostic testing.
Op State: Reason Hardware Incompatible	The component hardware is incompatible with the online system hardware.

Table 3-1. ftSMC System Inventory Component Properties *(Continued)*

Property	Description
Op State: Reason Bringup Failed	The driver did not bring the element online.
Op State: Reason Parent Broken	Parent device of this device is broken (for example, the parent I/O element for this adapter is broken).
Op State: Reason Media Disconnect	Simplex state was entered because a cable was unplugged.
Op State: Reason Firmware Burn Fail	Failed to update the BIOS.
Op State: Reason Firmware file not found	The entered firmware file path is either incorrect or the file does not exist.
Op State: Reason Firmware file error	Could not read the firmware file.
Op State: Reason Firmware PROM error	Could not write to the firmware file.
Op State: Reason Autoburn Disabled	Cannot match a new element's BIOS with that of the existing element. See AutoBurnEnabled in this table.
Op State: Reason Primary	With duplex devices, this indicates that the specific device is primary in the pair.
Op State: Reason Secondary	With duplex devices, this indicates that the specific device is secondary in the pair.
Op State: Reason Parent Empty	The device above this device in the hierarchy is not present or does not have power.
Op State: State	Operational state of a component.
Op State: State Broken	A component has a problem; an associated reason (see Op State: Reason) describes the problem. This is a terminal state; some user action must occur to change this state. User actions that cause a transition out of the Broken state include the **Initiate BringUp** and **Initiate BringDown** actions, and removing the component. Both of these actions are described in Table 3-2.
Op State: State Dumping	A CPU element is recovering crash dump information.
Op State: State Diagnostics	A component is running diagnostics.
Op State: State Diagnostics passed	A component has passed diagnostics.

Table 3-1. ftSMC System Inventory Component Properties *(Continued)*

Property	Description
Op State: State Empty	The component slot does not have a component present, or the component does not have power.
Op State: State Initializing	Preparing a device to be brought online.
Op State: State Firmware update	Board firmware code is being updated.
Op State: State Firmware update complete	Board firmware code is updated.
Op State: State Removed	A component is present in the slot, but main power is not turned on and the component is out of service.
Op State: State Shot	A component has an error and was taken out of service by system logic. When in this state, the component is electrically isolated from the rest of the system.
Op State: State Syncing	A CPU element is synchronizing with the online element.
Op State: State DeviceReady	Driver notified of a given device and is initializing the device. Applies to components that the PnP Manager can manage.
Op State: State Stopped	Driver stops the component; the component is no longer running. Applies to components that the PnP Manager can manage.
Op State: State StopPending	Waiting for a Stop or Stop Cancel request. Applies to components that the PnP Manager can manage.
Op State: State RemovePending	Waiting for the software removal that precedes the physical removal of the component. Applies to components that the PnP Manager can manage.
Op State: State SurpriseRemoval	A device was unexpectedly removed from the machine and is no longer available for I/O. Applies to components that the PnP Manager can manage.
Op State: State Simplex	A component is online and has no partner; it is not safe to remove this component. Applies to components that can be partnered.
Op State: State Duplex	The component is online and is running in lockstep with one other component. This component is safe to remove. Applies to components that can be partnered.
OPROMScanTime	Specifies the maximum time that PCI Option ROM processing can take before the system is considered hung.

Table 3-1. ftSMC System Inventory Component Properties *(Continued)*

Property	Description
OsBootTime	Specifies the maximum time that OS boot process processing can take before the system is considered hung.
Owner	Indicates the owner of the modem.
Pager Final Delay	The amount of time, in minutes, for the Alarm Service to wait after sending a page, before sending another one. This allows one page to be sent for multiple alarms occurring in a timespan. The default is 10 minutes.
Pager Initial Delay	The amount of time, in minutes, for the Alarm Service to wait after sending a page, before sending another one, to allow for multiple alarms to be aggregated and sent at the same time.
PartNumber	The VTM adapter part number.
Partner: DevicePath	Device identifier that locates the component that is the partner of this component if this component is operating in fault-tolerant mode and Partner: PartnerCount is not 0. See DevicePathID.
Partner: PartnerCount	Number of components of this type that are operating in a fault-tolerant mode: simplex (0), or duplex or DMR (1). Ethernet adapters must be partnered. A maximum of two adapters can be partnered by the Port Duplex driver.
Partners	Specifies the number of partner components a component has when operating in a fault-tolerant mode: simplex (0) or duplex (1). For example, a CPU element with one partner will have a value of Partners[1].
PCI ASIC	A set of properties (BusNumber, DeviceNumber, LogicRevision, Version) that provide information about the PCI ASIC in the I/O element.
PCIEnumerationTime	Specifies the maximum time that PCI enumeration can take before the system is considered hung.
PCIFunctionNumber	Function's PCI function number.
Phone Numbers	Telephone numbers of NEC Technical Support or your service representative. The numbers can be from 10 to 120 characters long and they are in text-character format (for example, 9785551234). When attempting to connect to the ASN, a system dials each phone number the number of times defined by Number of Retries.

Table 3-1. ftSMC System Inventory Component Properties *(Continued)*

Property	Description
PlexEpochValid	Specifies the maximum number of minutes you can keep a disk out of the system without causing a full resynchronization when the disk is returned to the system. A value of 0 disables any resynchronization of the disk after a disk is removed from and returned to the system. Default: 15 minutes.
PnpClass	Type of function as reported by Plug and Play.
PnpDescription	Description as it appears in Device Manager.
PnpDeviceID	Plug and Play device ID, including the Instance ID.
PnpDeviceLocation	Location of the function as reported by Plug and Play.
PnpManufacturer	Manufacturer of the function as reported by Plug and Play.
Polling Interval	The interval, specified in number of seconds, that the gateway VTM waits between polling slave machines in the ftGateway group. Polling determines if a slave is online or offline. The default value is 1800 seconds (30 minutes).
PollInterval	The interval, specified in number of seconds, at which the SES driver monitors the storage enclosure for device faults and removals by polling the SES device. The default poll interval is 3 seconds, and the valid range is 1 to 10 seconds. Do not change the default value.
PositiveGoingHysteris	A value subtracted from a reading to determine if a threshold event has cleared. A value of 0 means that the event clears once the reading rises to one more than Low Warning or Critical Threshold.
PowerState	Indicates whether power is applied to the modem slot.
PPP Password	Password used to authenticate the system to the ASN when the system calls home or when a call back is made to the system. See the *Express5800/320Ma ActiveService Network Configuration Guide*.
Preserve Alarm	Whether or not to preserve alarms after they are transmitted. False (do not preserve) by default. See Alarm Directory in this table.
PreTimeoutInterrupt	If enabled, BMC generates the selected interrupt a fixed interval before the watchdog timer expires. This property can take a value of NMI, SMI, MessagingInterrupt, or None.
PreTimeoutInterval	The number of seconds that the PreTimeoutInterrupt is issued before the timer expires.
Processing Rate	Sets the speed at which the Policy Service processes received events. This property can take a value of Normal, Low, or Very Low.

Table 3-1. ftSMC System Inventory Component Properties *(Continued)*

Property	Description
PwrDownBrokenCpuEnabled	When a CPU element transitions to the Broken state, the system powers it down if this property is enabled (True). The default is enabled (True).
PwrDownBrokenIoEnabled	When an I/O element transitions to the Broken state, the system powers it down if this property is enabled (True). The default is enabled (True).
RdrLunLoadBalancing	Load balancing policy for this virtual disk. Default is On (enabled).
ReadingTime	For storage enclosures equipped with environmental sensors. The date and time when the current reading from a storage enclosure sensor was taken.
ReceiveMessageQueueInterruptEnabled	Enables (True) or disables (False) the receive message queue interrupt.
RegistryPath	Location in the HKEY_LOCAL_MACHINE Registry key.
RevisionID	Chipset revision incremented when vendor updates chipset.
SELTime	The time used by the system event log. This value is set by the **Synchronize SEL date and time with System** action, which is described in Table 3-2.
Send Alarms By	Defines whether call-home alarms will be sent by VTM adapter only, the Internet only, VTM adapter with Internet backup, or the Internet with VTM adapter backup.
Serial Number	The system serial number as stored in the system ID PROM. Filled in automatically.
Short Idle Re-send Count	The number of re-send attempts, separated by Short Idle Time Between Re-sends, that ftServer Manager will make before moving to the medium idle interval.
Short Idle Time Between Re-sends	The short Idle time, in seconds, between attempts to re-send an alarm. After an unsuccessful attempt to send an alarm message, ftServer Manager waits this long before it attempts to re-send the alarm. After a number of unsuccessful attempts, defined by Short Idle Re-send Count, ftServer Manager will wait the amount of time defined by Medium Idle Time Between Re-sends before attempting to re-send the alarm message
Site Heartbeat Granularity	The granularity of the site heartbeat interval. 0 = days, 1 = minutes.
Site Heartbeat Interval	The interval between site heartbeat alarms. Minimum interval = 10 minutes; maximum = 1 year; 0 = disabled.

Table 3-1. ftSMC System Inventory Component Properties *(Continued)*

Property	Description
Site Heartbeat Next Due	The coordinated universal time (UTC) at which to expect the next site heartbeat alarm.
Site Heartbeat Time Due	Specifies the time of day for the initial site heartbeat alarm (24-hour clock).
Site ID	An Express5800/320Ma system identification code supplied by NEC Solutions (America), Inc. You can obtain this code from a label that is affixed to the system.
SizeMb	The memory capacity of a DIMM, in megabytes.
SMM Admin Enable Email	Enables the sending of VTM email alerts.
SMM Admin ID	User name for the administrator account on the VTM.
SMM Admin Password	Password for the administrator account on the VTM.
SMM Admin Dialback Number	The phone number you use to dial in to the VTM adapter. After you dial in and are authenticated as the administrator, the VTM hangs up the connection and dials the dialback number to reestablish the connection.
SMM ASN Hub ID	User name for the ASN hub account on the VTM.
SMTP Forwarding	The DNS name or IP address of an SMTP server. Messages sent to the SMTP server will be forwarded to this server.
SNMP Community	A filter for incoming SNMP messages and outgoing SNMP traps.
SMTP Server Enabled	Set to true if the SMTP server should be started; otherwise, false.
SMTP Server IP	The IP address of your email server.
SMTP Server IP 1-7	The IP addresses of the SNMP servers that receive VTM SNMP traps.
SMTP Server Port	TCP port number the SMTP server listens to.
SMM ASN Hub Password	Password for the ASN hub account on the SSM.
SPPData	ftSMC displays the Serial Presence Detect data (SPDData) properties for the CPU element DIMMs. Serial Presence Detect (SPD, device detection over a serial bus) is an enhanced presence detection method that uses an EEPROM to store the module timings and configuration, and the manufacturer's data. Presence detection is a means of identifying a memory chip to the memory controller logic. The NEC Technical Support or your service representative uses this information to troubleshoot system memory problems.

Table 3-1. ftSMC System Inventory Component Properties *(Continued)*

Property	Description
Startup Time	Number of seconds that the Policy Service waits for the system to reach a quiescent state after booting.
State	State, province, or other political entity where your company is located.
Status	Provides the status of a system inventory component.
StatusLEDColor	Provides the state of the Status LED.
StorageProcessor	The type of processor in the attached storage system.
StorageSerialNumber	The serial number of the attached storage system.
StorageType	The product family name of the attached storage system.
Support Phone	Telephone number (1-866-269-1239) that you call to reach NEC Technical Support or your service representative. This number is for information only, as ftServer Manager does not use this number. You should make a note of this telephone number in the event you need support and your system is not functioning.
Street[1]	Field containing the address (street, department, mail stop, PO box, and so on) where your company is located.
Street[2]	A second field containing the address (street, department, mail stop, PO box, and so on) where your company is located.
SubNetMask	For systems equipped with VTMs. A 32-bit structure that tells TCP/IP which bits in a given address specify the network ID and which specify the subnetwork ID (for example, 255.255.255.0).
SubsystemID	ID of board among boards from vendor with the same chipset.
SubSystemVendorID	PCI SIG-assigned ID to uniquely identify PC board vendor.
SummaryScreen	Specifies whether the Summary screen should be displayed before Windows is started.
System Email Address	The email address to be used in the “From” field of a user notification alarm message (for example, machine4@company.com).
SystemEventLoggingEnabled	Enables (True) or disables (False) the logging of events to the system event log.
System: IDPROM: ArtworkRevision	The artwork revision of a board. Board identification information is stored in IDPROM on boards manufactured by NEC Solutions (America).

Table 3-1. ftSMC System Inventory Component Properties *(Continued)*

Property	Description
System: IDPROM: ECOLevel	The engineering change level of a board. Board identification information is stored in IDPROM on boards manufactured by NEC Solutions (America).
System: IDPROM: EEPROMVersion	The EEPROM version. Board identification information is stored in IDPROM on boards manufactured by NEC Solutions (America).
System: IDPROM: IdVersion	A version identifier. Board identification information is stored in IDPROM on boards manufactured by NEC Solutions (America).
System: IDPROM: Magic	Board identification information is stored in IDPROM on boards manufactured by NEC Solutions (America).
System: IDPROM: MinPartnerECOLevel	The minimum ECO level required of partners to this board. Board identification information is stored in IDPROM on boards manufactured by NEC Solutions (America).
System: IDPROM: ModelDesc	The type of board. Board identification information is stored in IDPROM on boards manufactured by NEC Solutions (America).
System: IDPROM: ModelName	The model designation of a board. Board identification information is stored in IDPROM on boards manufactured by NEC Solutions (America).
System: IDPROM: SerialNumber	The serial number of a board. Board identification information is stored in IDPROM on boards manufactured by NEC Solutions (America).
TargetId	SCSI target ID associated with a device.
TargetId[n]	SCSI target IDs associated with a device that has more than one path to the host.
TeamDeviceName	The name used to identify a virtual adapter.
TeamMemberCount	Statically configured size of the team. When Partner: PartnerCount is one less than this value, all partners are present.
Time of Last Fault	The time the device last failed.
TimeoutAction	Specifies the action to be taken upon expiration of the watchdog timer. This property can take the values None, Hard Reset, Power Down, or PowerCycle.
Transmit Timeout	Maximum amount of time, in seconds, that it reasonably takes for ftServer Manager to transmit 1000 bytes of data to the ASN once VTM establishes a connection. Default is 20 seconds for an average of 50 bytes/second.

Table 3-1. ftSMC System Inventory Component Properties *(Continued)*

Property	Description
Type of MTBF	Defines how a threshold value is used when a device breaks. Usually set to Use Threshold, which means that the threshold value is used to determine whether to bring the device automatically back into service.
UpperThresholdCritical	Threshold values specify the ranges for determining whether the monitored component is operating under normal, noncritical, critical, or fatal conditions. Depending on the sensor, values are in degrees Celsius (^{o}C), millivolts (mV), revolutions per minute (rpm), or milliamperes (mA).
UpperThresholdFatal	Threshold values specify the ranges for determining whether the monitored component is operating under normal, noncritical, critical, or fatal conditions. Depending on the sensor, values are in degrees Celsius (^{o}C), millivolts (mV), revolutions per minute (rpm), or milliamperes (mA). This property is not configurable and attempting to change it will display the value of Not Set.
UpperThresholdNonCritical	Threshold values specify the ranges for determining whether the monitored component is operating under normal, noncritical, critical, or fatal conditions. Depending on the sensor, values are in degrees Celsius (^{o}C), millivolts (mV), revolutions per minute (rpm), or milliamperes (mA).
Value	Specifies the component number of the partner. For instance, a value of 0 indicates that the partner of the highlighted CPU element is in element 0.
VendorID	PCI SIG-assigned ID to uniquely identify chip-set vendor.
Verify RDR Virtual Disk	Verifies the integrity of RDR disk mirrors.
WBEM Poll Time	Number of seconds that the Policy Service waits for checking the state of the WMI service and executes a recovery procedure if the WMI service has restarted. The default is 120 seconds (2 minutes).
WBEM Timeout	Number of seconds that the Policy Service waits for WMI to complete an operation. The default is 120 seconds (2 minutes).
WDTEnable	Enables (True) or disables (False) the Watchdog Timer.
Zip Code	Zip code, or equivalent, where your company is located.

ftSMC Component Actions

Table 3-2 describes the actions, or *commands*, associated with the ftSMC system inventory components.

Table 3-2. ftSMC System Inventory Component Actions

Action	Description
Add Physical Disk to RDR Virtual Disk	Adds a disk to a Rapid Disk Resync (RDR) virtual disk.
Break Physical Disk from RDR Virtual Disk	Splits an RDR plex from the RDR virtual disk and presents the plex in Windows Disk Management as a new disk. All the volume data on the original RDR disk is available from the new disk.
Clear MTBF	Resets the MTBF to infinity, the number of faults to 0, and the time of last fault to never.
Configure the ASN	Loads the ASN configuration file created from the ActiveService Manager.
Create ftGateway Group	Creates a new ftGateway group using a customer-supplied name for the group.
Delete RDR Configuration on Physical Disk	Deletes the RDR configuration from a physical disk, thereby removing it from the RDR virtual disk.
Deport Physical Disk from RDR Virtual Disk	Makes the deported disk a clone of its RDR virtual disk partner. Creates backup disks and spare bootable RDR virtual disks.
Dump and Go	Captures a snapshot dump of a running system without significantly interfering with system operation, and displays the status of the operation.
Enumerate PCI Config Spaces	Determines and lists all PCI resources associated with this component. Creates the folder PCI Config Spaces under the component folder in the Console tree. The PCI Config Spaces folder contains PCI Device and PCI Bridge folders. Click these folders to see the PCI properties in the Details pane. When you exit ftSMC, the PCI Config Spaces folders close permanently. You can regenerate the folders in a new ftSMC session.
Generate Full Inventory	Generates a full inventory report on a non-ASN system.
Initiate BringDown	Takes the component out of service (offline) and turns off power to it. You cannot use this action on a simplex component. The component must be online and duplex, offline with firmware update complete or diagnostics passed, or broken or shot. You are warned that shutting down this component may adversely affect performance and system fault tolerance, and you are prompted for confirmation.

Table 3-2. ftSMC System Inventory Component Actions *(Continued)*

Action	Description
Initiate BringUp	Powers the component on and brings it into service (online). The component must be offline, broken, or shot.
Initiate Diagnostics	Runs diagnostic tests on the component. The component must be out of service (offline) before you can run diagnostics. Initiate Diagnostics turns on power to the component to run the diagnostic tests. This action is unavailable if the component is online. Diagnostics also run just prior to bringing the device into service.
Initiate Jump Switch	Switches from one or more running CPUs to a new CPU and displays the status of the operation. Normally used to upgrade the CPU element BIOS.
Issue Bus Reset	Resets the bus. Normally, when a bus error occurs, the bus resets automatically. Typically, the NEC Technical Support initiates this action only when the bus does not reset after a bus error.
Join ftGateway Group	Adds a slave system to an existing ftGateway group.
Launch Intel PROSet	Launches the Intel® PROSet utility.
Leave ftGateway Group	Removes a slave system from an ftGateway group.
Perform Memory Check	Performs a memory comparison on all online CPU elements. A memory check involves a read, followed by a write if an error is detected, of every location in memory. This is necessary to ensure that memory on all CPU elements is identical in content. When elements are initially partnered, memory is automatically checked. A dialog box indicates the status of the action; click **OK** to close the dialog box.
Remove ftGateway Group	Removes an ftGateway group. You must remove all slave systems from the group prior to executing this action.
Remove Physical Disk from RDR Virtual Disk	Deletes all of the data from the RDR target disk.
Renew DHCP	Renews the dynamic host configuration protocol (DHCP) IP addresses used for the VTM Internet connection.
Reset Device Properties	Resets configurable device properties to the default values and displays the status of the operation.
Reset Driver Properties	Resets all Board Instance Driver - srabid configurable properties to their default values.

Table 3-2. ftSMC System Inventory Component Actions *(Continued)*

Action	Description
Resynchronize This Physical Disk From RDR Virtual Disk	Resynchronizes a disk with its partner.
Save WMI Recovery Information	Saves the system configuration information that is required to rebuild the WMI database. Perform this action after making any changes to the ASN configuration.
Schedule CPU BringUp Options	Defers bringup of an offline CPU element until a specified time, when server load is low.
Send Inventory Report	Sends a report of the system inventory to the NEC Technical Support or your service representative. The system inventory report consists of the details of the current information for all nodes, as shown in the ftSMC Details panes for each node.
Set as Active ASN	Sets one of the ten numbered ASN configurations to be the active configuration to the exclusion of the other ASN configurations. The active ASN configuration is the one that the system uses to dial out.
Set As Active RDR Plex	Makes the RDR disk on which this command is issued the "active" disk.
Set Cache Flush Interval	Sets the value of the LunFlushInterval property.
Set MTBF Faultcount Limit	Sets the MTBF faultcount limit, which is the number of times certain errors can occur before the system sends threshold events that generate alarms.
Set MTBF Threshold	Sets the MTBF threshold and views the current count (seconds), number of faults, and date and time of last fault. NEC Solutions (America)presets the MTBF threshold; you should not change it unless instructed to do so by your support representative.
Set MTBF Type	Defines how the MTBF threshold value is used when the MTBF of a device goes below the threshold. Values are Use Threshold, Never Restart, or Always Restart. Normally set to Use Threshold, which indicates that the threshold value is used to determine whether or not to bring the device back into service automatically.
Set Primary	Sets the current secondary adapter to be the primary adapter.
Set Priority	Sets the priority for the CPU element. Supported priorities are High and Medium. Setting the priority of one element affects the priorities of the other elements; see OnlineCpuPriority in Table 3-1. CPU elements must be in duplex mode to change priority; you cannot change the priority of a simplex element.

Table 3-2. ftSMC System Inventory Component Actions *(Continued)*

Action	Description
Set Rdr Lun Load Balancing	Sets read load balancing for RDR virtual disks to on or off.
Set Resync Priority	Sets the resynchronization priority for individual RDR disks.
Start Slot Identification	Causes the LEDs on the disk in the slot to flash so that you can physically locate a disk that is experiencing a problem.
Stop Slot Identification	Stops the LEDs on the disk from flashing. See Start Slot Identification.
Stop Verify	Stops the RDR disk verification operation.
Synchronize SEL date and time with System	Assigns the current system date and time to the SELTime property.
Update BMC Firmware	Updates the BMC firmware. See the *Express5800/320Ma: Software Installation and Configuration Guide* for details.
Update Firmware	Updates a device's firmware (for example, the BIOS in the CPU element, or the firmware for storage enclosures or VTMs). Prompts you to enter the path of the file containing the updated firmware and copies the file to the appropriate location. This action may be unavailable if the device is online. See the *Express5800/320Ma: Software Installation and Configuration Guide* for details.
Update ID Prom	Updates the IDPROM information. See IDPROM in Table 3-1 for IDPROM information. When you finish, click **Apply**. A dialog box displays the status of the operation.
Update Network Settings	Updates the VTM network settings.
Verify RDR Virtual Disk	Verifies the integrity of RDR disk mirrors.

Chapter 4
System Alarm Messages

The alarm messages for the various devices in Express5800/320Ma 3.2 GHz, 3.6 GHz, and Dual-Core systems are presented in several tables in this chapter.

- Tables 4-1 through 4-7 list only the numeric alarm IDs (for example, 30100, 30101, and so on) for device state alarms and threshold alarms related to specific devices; for example, DIMMs, PCI slots, and so on.
- Table 4-8 contains the text of the messages corresponding to the alarm IDs listed in the preceding tables.
- Table 4-9 presents ftGateway alarm messages.
- Table 4-10 presents miscellaneous numeric alarm IDs, messages, and their default destinations. Some of these messages are not related to particular devices.

When reading the alarm messages shown in Table 4-8, replace *dev* with the appropriate device name from tables 4-1 through 4-7. When the alarm message is sent, the %1 item is replaced with the device ID of the component. For example, alarm ID 30101 appears as *`CPU board '2' broken`*.

For NEC Technical Support destination, the message is sent to NEC Technical Support or your authorized service provider only if you have a service agreement. The message goes to an administrator's pager or email only if configured to do so.

You can find alarm IDs and descriptions for alarms related to the following devices:

- BMC
- CPU board (enclosure)
- Digi (Asynchronous) adapter
- DIMM
- Disks
- Ethernet adapter
- Fan
- Fan Speed sensor
- Fibre channel adapter

- Fibre channel port
- ftGateway
- I/O board (enclosure)
- I2C bridge
- I2C bus
- ID PROM
- LCD
- Machine check and ECC thresholds
- Network port
- PCI adapter
- PCI slot
- Power supply
- Processor
- Sensor
- Serial Storage Port
- SMM (VTMs)
- SMM battery (VTMs)
- Temperature sensor
- Voltage sensor
- Current sensor
- Uninterruptible power supply

SNMP Traps

Most alarms can also generate SNMP traps. Device state alarms generate an SNMP trap whenever a device state transitions to an online, broken, or offline state and whenever a device state transitions from one of these states. Sensor threshold alarms generate an SNMP trap whenever a sensor status improves or worsens to normal, warning, and critical states.

All of the device state and threshold alarms in Table 4-1 through Table 4-6 can generate SNMP traps. See Table 4-10 for information about which miscellaneous alarms can generate SNMP traps.

Device State and Threshold Alarms

Table 4-1 through Table 4-7 list the alarm IDs for device state alarms and threshold alarms. Each alarm ID in these tables is linked to the alarm message and alarm destination information in Table 4-8. Note the alarm ID's message number in the left-most column of Table 4-1 through Table 4-7, and find that message number in Table 4-8.

Table 4-1. Alarm IDs (30100 - 30413)

Alarm Message Number in Table 4-8	Device Name (*dev* in Table 4-8)						
	CPU Board	DIMM	Processor Board	I/O Board	PCI Slot	SMM (VTM)	Ethernet
1	30100	30150	30200	30250	30300	30350	30400
2	30101	30151	30201	30251	30301	30351	30401
3	30102	30152	30202	30252	30302	30352	30402
4	30103	30153	30203	30253	30303	30353	30403
5	30104	30154	30204	30254	30304	30354	30404
6	30105	30155	30205	30255	30305	30355	30405
7	30106	30156	30206	30256	30306	30356	30406
8	30107	30157	30207	30257	30307	30357	30407
9	30108	30158	30208	30258	30308	30358	30408
10	30109	30159	30209	30259	30309	30359	30409
11	30110	30160	30210	30260	30310	30360	30410

Table 4-1. Alarm IDs (30100 - 30413) *(Continued)*

Alarm Message Number in Table 4-8	Device Name (*dev* in Table 4-8)						
	CPU Board	DIMM	Processor Board	I/O Board	PCI Slot	SMM (VTM)	Ethernet
12	30111	30161	30211	30261	30311	30361	30411
13	30112	30162	30212	30262	30312	30362	30412
14	30113	30163	30213	30263	30313	30363	30413

Table 4-2. Alarm IDs (30550 - 31863)

Alarm Message Number in Table 4-8	Device Name (*dev* in Table 4-8)	
	Digi Adapter	Fibre Channel Adapter
1	30700	31850
2	30701	31851
3	30702	31852
4	30703	31853
5	30704	31854
6	30705	31855
7	30706	31856
8	30707	31857
9	30708	31858
10	30709	31859
11	30710	31860
12	30711	31861
13	30712	31862
14	30713	31863

Table 4-3. Alarm IDs (30750 - 31155)

Alarm Message Number in Table 4-8	Device Name (*dev* in Table 4-8)		
	UPS	UPS Batteries	Current Sensor
1	30750	30800	31150
2	30751	30801	31151
3	–	30802	31152
4	–		31153
5	–	–	31154
6	–	–	31155

Table 4-4. Alarm IDs (31900 - 32263)

Alarm Message Number in Table 4-8	Device Name (*dev* in Table 4-8)					
	Fibre Channel Port	I2C Bus	I2C Bridge	LCD	ID PROM	SMM Battery (VTM)
1	31900	–	–	–	–	–
1b	–	32000	32050	32150	32200	32250
2	31901	32001	32051	32151	32201	32251
3	31902	32002	32052	32152	32202	32252
4	31903	32003	32053	32153	32203	32253
5	31904	32004	32054	32154	32204	32254
6	31905	32005	32055	32155	32205	32255
7	31906	32006	32056	32156	32206	32256
8	31907	32007	32057	32157	32207	32257
9	31908	32008	32058	32158	32208	32258
10	31909	32009	32059	32159	32209	32259

Table 4-4. Alarm IDs (31900 - 32263)

Alarm Message Number in Table 4-8	Device Name (*dev* in Table 4-8)					
	Fibre Channel Port	I2C Bus	I2C Bridge	LCD	ID PROM	SMM Battery (VTM)
11	31910	32010	32060	32160	32210	32260
12	31911	32011	32061	32161	32211	32261
13	31912	32012	32062	32162	32212	32262
14	31913	32013	32063	32163	32213	32263

Table 4-5. Alarm IDs (30850 - 31453)

Alarm Message Number in Table 4-8	Device Name (*dev* in Table 4-8)							
	Power Supply	Fan	Temp Sensor	Speed Sensor	Voltage Sensor	CPU Board ECC	Sensor	CPU Board Machine Check and ECC Thresh-olds
1	30850	30900	30950	31000	31050	–	–	–
2	30851	30901	30951	31001	31051	–	–	–
3	30852	30902	–	–	–	–	–	–
.	–	–	–	–	–	–	–	–
15	–	–	31250	31200	31300	31350	31400	31450
16	–	–	31251	31201	31301	31351	31401	31451
17	–	–	31252	31202	31302	31352	31402	31452
18	–	–	31253	31203	31303	31353	31403	31453
19	–	–	31254	31204	31304	–	31404	–
20	–	–	31255	31205	31305	–	31405	–

Table 4-6. Alarm IDs (32350 - 32663)

Alarm Message Number in Table 4-8	Device Name (*dev* in Table 4-8) Disks
1	32350
2	32351
3	–
4	–
5	–
6	–
7	–
8	–
9	–
10	–
11	–
12	–
13	–
14	–
15	32450
16	32451
17	32452
18	32453

Table 4-7. Alarms IDs (32500 - 32713)

Alarm Message Number in Table 4-8	Device Name (*dev* in Table 4-8)		
	PCI Adapter	Network Port	BMC

Table 4-7. Alarms IDs (32500 - 32713) *(Continued)*

Alarm Message Number in Table 4-8	Device Name (*dev* in Table 4-8)		
1	32500	32550	32700
2	32501	32551	32701
3	32502	32552	32702
4	32503	32553	32703
5	32504	32554	32704
6	32505	32555	32705
7	32506	32556	32706
8	32507	32557	32707
9	32508	32558	32708
10	32509	32559	32709
11	32510	32560	32710
12	32511	32561	32711
13	32512	32562	32712
14	32513	32563	32713

Table 4-8 lists the messages and default destinations for the various types of alarms. A letter **P** or **E** in the **Send to Pager Email** column indicates that the alarm message can be sent to a user's pager or to their email.

Table 4-8. Alarm Messages and Message Destinations

Alarm Message Number from Table 4-1 through Table 4-7	Alarm Message	Send to NEC Technical Support	Send to Pager Email
1	*dev* '%1' empty.	**Yes**	**–**
1b	*dev* '%1' empty.	**No**	**–**
2	*dev* '%1' broken.	**Yes**	**P,E**
3	*dev* '%1' broken: MTBF threshold exceeded.	**Yes**	**P,E**

Table 4-8. Alarm Messages and Message Destinations *(Continued)*

Alarm Message Number from Table 4-1 through Table 4-7	Alarm Message	Send to NEC Technical Support	Send to Pager Email
4	*dev* '%1' broken: diagnostics failed.	**Yes**	**P,E**
5	*dev* '%1' broken: hardware incompatible.	**Yes**	**P,E**
6	*dev* '%1' broken: holding dump.	**Yes**	**P,E**
7	*dev* '%1' broken: bring-up failed.	**Yes**	**P,E**
8	*dev* '%1' broken: media disconnected.	**Yes**	**P,E**
9	*dev* '%1' broken: firmware burn failed.	**Yes**	**P,E**
10	*dev* '%1' broken: firmware burn failed, file not found.	**No**	**–**
11	*dev* '%1' broken: firmware burn failed, file error.	**No**	**–**
12	*dev* '%1' broken: firmware error.	**Yes**	**P,E**
13	*dev* '%1' broken: firmware burn failed, autoburn disabled.	**Yes**	**P,E**
14	*dev* '%1' broken: cannot read ID PROM.	**Yes**	**P,E**
15	*dev* '%1' below critical threshold.	**Yes**	**P,E**
16	*dev* '%1' above critical threshold.	**Yes**	**P,E**
17	*dev* '%1' below fatal threshold.	**Yes**	**P,E**
18	*dev* '%1' above fatal threshold.	**Yes**	**P,E**
19	*dev* '%1' below warning threshold.	**No**	**P,E**
20	*dev* '%1' above warning threshold.	**No**	**P,E**
21	*dev* '%1' disconnected.	**Yes**	**–**

ftGateway Alarm Messages

Table 4-9 presents the ftGateway alarm messages.

Table 4-9. ftGateway Alarm Messages

Alarm Message	Alarm ID	Send to NEC Technical Support	Send to Pager Email	Generate SNMP Trap
New ftGateway group created.	30019	**Yes**	**–**	**No**
ftGateway group removed.	30020	**Yes**	**–**	**No**
New slave added or removed from the ftGateway group.	30021	**Yes**	**–**	**No**
ftGateway warning: slave %1 not responding.	30022	**Yes**	**–**	**No**

Miscellaneous Alarms

Table 4-10 presents miscellaneous alarm messages, some of which are not specifically related to particular devices.

Table 4-10. Miscellaneous Alarm Messages and Message Destinations

Alarm Message	Alarm ID	Send to NEC Technical Support	Send to Pager Email	Generate SNMP Trap	Notes
Device %1 inserted into system.	30007	**No**	**–**	**No**	Include device inventory only.
CPU Board '%1' went empty unexpectedly. This may have been caused by an unexpected loss of power.	30009	**Yes**	**–**	**No**	Include device inventory only.
I/O Adapter '%1' went empty unexpectedly. This may have been caused by an unexpected loss of power.	30010	**Yes**	**–**	**No**	Include device inventory only.
Unknown alarm ID %2 from device '%1'.	30014	**Yes**	**P,E**	**No**	Include device inventory only.

Table 4-10. Miscellaneous Alarm Messages and Message Destinations *(Continued)*

Alarm Message	Alarm ID	Send to NEC Technical Support	Send to Pager Email	Generate SNMP Trap	Notes
Unknown state/reason based alarm. Device: %1 Class: %2 State: %3 Reason: %4	30015	**Yes**	**P,E**	**No**	Include device inventory only.
One or more management services have failed.	30016	**Yes**	**P,E**	**Yes**	–
Upon reboot, ftSM detected that the system had previously been shut down incorrectly.	30017	**Yes**	**P,E**	**No**	–
Dialtone is not present. Check the telephone line connection.	30024	**No**	**P,E**	**No**	–
The Alarm service failed to generate an alarm message for alarm ID %2. The parameters were:%n Device:%1 %n Class:%3 %n State:%4 %n Reason:%5 %n	30027	**Yes**	**–**	**No**	**–**
The products database has been compromised. The new database contains: %1	30028	**Yes**	**–**	**No**	**–**
A product has been added to the products database. The new record contains: %1	30029	**Yes**	**–**	**No**	**–**
The name of a product has changed. %1	30030	**Yes**	**–**	**No**	**–**
The description of a product has changed. %1	30031	**Yes**	**–**	**No**	**–**
The state of a product has changed. %1	30032	**Yes**	**–**	**No**	**–**

Table 4-10. Miscellaneous Alarm Messages and Message Destinations *(Continued)*

Alarm Message	Alarm ID	Send to NEC Technical Support	Send to Pager Email	Generate SNMP Trap	Notes
The disk %1 reported errors (logical unit not ready, initializing command required) while being brought online. The disk is not being brought online.	30033	**Yes**	**P,E**	**–**	**–**
The Alarm Service / Alert API failed to generate and send an alert to your system's service provider. This alert may indicate a serious condition that requires attention.	30035	**Yes**	**No**	**No**	**–**

Chapter 5
BIOS Setup

The ftServer Setup utility is the BIOS setup utility for your Express5800/320Ma 3.2 GHz, 3.6 GHz, or Dual-Core system. Although the ftServer Setup enables you to set up or restore default system values by navigating the setup screens and menus, exercise caution before changing BIOS settings. The utility provides help for using the setup screens.

The menus shown in this description may differ somewhat from the menus you see on your system because of different hardware configurations and feature installations.

Before You Change BIOS Settings

CAUTION

Some of the options available through the ftServer setup utility can affect system stability. Incorrect settings may cause data loss or system failure.

Consult NEC Technical Support or your service representative before changing any BIOS setting that may affect system performance.

Express5800/320Ma documentation provides detailed instructions for performing certain BIOS setup procedures.

The *Express5800/320Ma: System Administrator's Guide* documents:

- Disabling hyperthreading
- Using Windows headless mode and console redirection

Starting the ftServer Setup Utility

This section describes how to start the ftServer Setup utility.

To start the ftServer Setup utility

1. Turn on or restart your system. When the logo screen appears, or when messages first begin to appear on your monitor, press **F2** to enter ftServer Setup.
2. The system continues the POST (power-on self test) process for a minute or two, and then displays the ftServer Setup **Main** menu.

Navigating and Using the ftServer Setup BIOS Setup Menus

You use the Legend Bar and the Menu Bar to navigate through the BIOS setup menus.

To navigate the Setup screens, use your keyboard and the menu bar at the top of each menu. Once you have accessed the menu that contains the target feature, use the keyboard to change the feature's value. You must choose **Save Changes & Exit** from the **Exit** menu for your changes to take effect.

NOTE

You can determine the BIOS version using ftSMC. Click a CPU Enclosure node and look at the value of the BIOS: Version property in the Details pane.

To select an item

1. Use the UP and DOWN arrow keys to move the cursor to the field you want to select.
2. Use the PLUS and MINUS keys to select a value for that field.
3. Save the currently displayed values by selecting **Save Changes & Exit** or **Save Changes** in the **Exit** menu.

To display a submenu

1. Use the UP and DOWN arrow keys to move the cursor to the submenu you want to display. A triangular pointer marks all submenus.
2. Press **ENTER**.

Legend Bar

Use the keys listed in the legend bar at the bottom of your menu to make selections or exit the current menu. Table 5-1 describes the legend bar keys and the legend bar key alternates.

Table 5-1. Legend Bar Keys and Functions

Key(s)	Function
F1 or ALT+H	Display the General Help window.
ESC or ALT+X	Exit from the current menu.
UP ARROW or DOWN ARROW	Move the cursor up or down.
RIGHT ARROW or LEFT ARROW	Select a different menu.
Minus (-) or F5	Select the previous value for the field.
Plus (+), F6, or SPACEBAR	Select the next value for the field.
F9	Load the default configuration values for all menus.
F10	Save the current settings and exit from Setup.
ENTER	Execute the command or select the submenu.

Menu Bar

The menu bar (shown in Figure 5-1) appears on the Main menu and lists the major menus available to you from that menu. Select **Advanced**, for example, to display the **Advanced** menu and its options. The **Advanced** menu includes submenus.

Boldface in the menu figures indicates the current menu selection; on the system, a highlight bar marks the current menu selection.

See “Legend Bar” on page 5-2 for specific instructions on how to use your keyboard to make selections.

Figure 5-1. ftServer Setup Menu Bar

Table 5-2 lists the menu bar items and the features and submenus available from it.

Table 5-2. Menu Bar Selections

Menu	Feature	Submenu
Main Menu	System Time System Date Summary Screen Boot-time Diagnostic Screen CPU Speed Physical CPUs Logical CPUs System Memory Extended Memory Cache Ram BIOS Version BMC Firmware Version	(none)
Advanced Menu	Power Mode After AC Failure	Advanced Processor Configuration I/O Device Configuration PCI Configuration Console Redirection Monitoring Configuration
Security Menu	Supervisor Password Is User Password Is Set Supervisor Password Set User Password Password on Boot	(none)
Boot Menu	Hard Drive CD-ROM Drive Removable Devices Network	(none)
Exit Menu	Exit Saving Changes Exit Discarding Changes Load Setup Defaults Discard Changes Save Changes	(none)

Help

The Item Specific Help window and the General Help window provide information about how to use the Setup screens. The Item Specific Help window is always located on the right side of every ftServer Setup menu (see Figure 5-2). It provides helpful information that pertains to the selected field. The General Help window contains information that applies to all of the screens. To view the General Help window, press F1 or ALT+H.

Restoring Default Values Feature

During system boot, ftServer Setup tries to load the values saved in CMOS RAM. If those values are incorrect and cause the system boot to fail, you should reboot and press F2 to enter ftServer Setup. There, you can attempt to change the values that caused the failure, if they are known, or you can reset the default values. Use the **Load Setup Defaults** option under the **Exit** menu to reset the default values. See the **Exit** menu for details.

ftServer Setup Menus

The ftServer Setup utility for systems includes the following menus and submenus:

- Main Menu
- Advanced Menu
  - Advanced Processor Configuration Submenu
  - I/O Device Configuration Submenu
  - PCI Configuration Submenu
  - Console Redirection Submenu
  - Monitoring Configuration Submenu
- Security Menu
- Boot Menu
- Exit Menu

Main Menu

Figure 5-2 shows the **Main** menu, the first menu ftServer Setup displays.

Figure 5-2. Main Menu

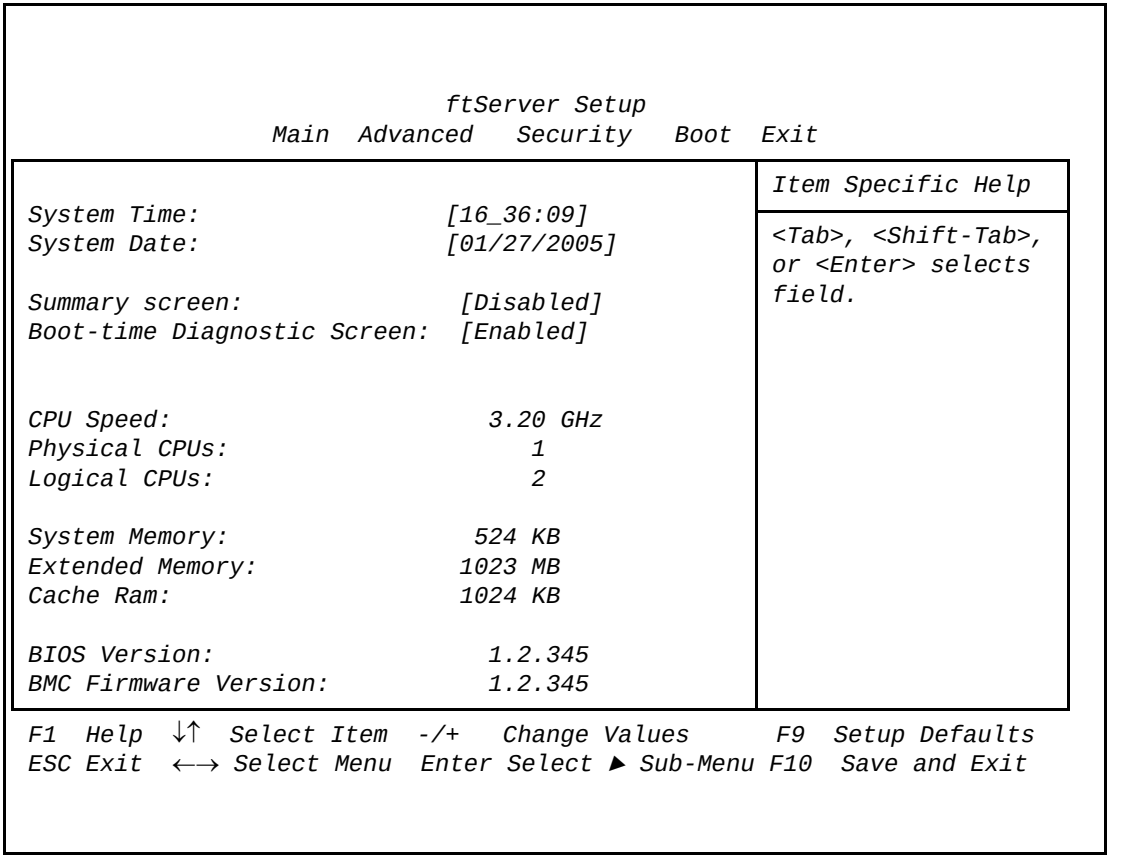

ftServer Setup
Main Advanced Security Boot Exit
Item Specific Help
System Time: [16_36:09]
System Date: [01/27/2005]
<Tab>, <Shift-Tab>, or <Enter> selects field.
Summary screen: [Disabled]
Boot-time Diagnostic Screen: [Enabled]
CPU Speed: 3.20 GHz
Physical CPUs: 1
Logical CPUs: 2
System Memory: 524 KB
Extended Memory: 1023 MB
Cache Ram: 1024 KB
BIOS Version: 1.2.345
BMC Firmware Version: 1.2.345
F1 Help ↓↑ Select Item -/+ Change Values F9 Setup Defaults
ESC Exit ←→ Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit

Table 5-3 describes the features available from the **Main** menu.

Table 5-3. Main Menu Features

Feature	Options	Description
System Time	HH:MM:SS	Sets the system time.
System Date	MM/DD/YYYY	Sets the system date.
Summary Screen	Enabled Disabled	If enabled, displays the names of system devices detected during system boot. The summary appears at the end of the BIOS power-on self-test (POST). Disabled by default.
Boot-time Diagnostic Screen	Enabled Disabled	If enabled, the system displays boot information on the screen.
CPU Speed	(none)	Displays the CPU processor speed.
Physical CPUs	(none)	Displays the number of physical processors in the system.
Logical CPUs	(none)	Displays the number of logical processors: equal to one half the number of physical processors.
System Memory	(none)	Displays the amount of conventional memory detected during system boot.
Extended Memory	(none)	Displays the amount of extended memory detected during system boot.

Table 5-3. Main Menu Features *(Continued)*

Feature	Options	Description
Cache Ram	(none)	Displays the amount of cache RAM.
BIOS Version	(none)	Displays the version of the installed BIOS.
BMC Firmware Version	(none)	Displays the version of the installed BMC.

Advanced Menu

Select **Advanced** from the Main menu to display the **Advanced** menu, which is shown in Figure 5-3. From this menu you can access the following submenus :

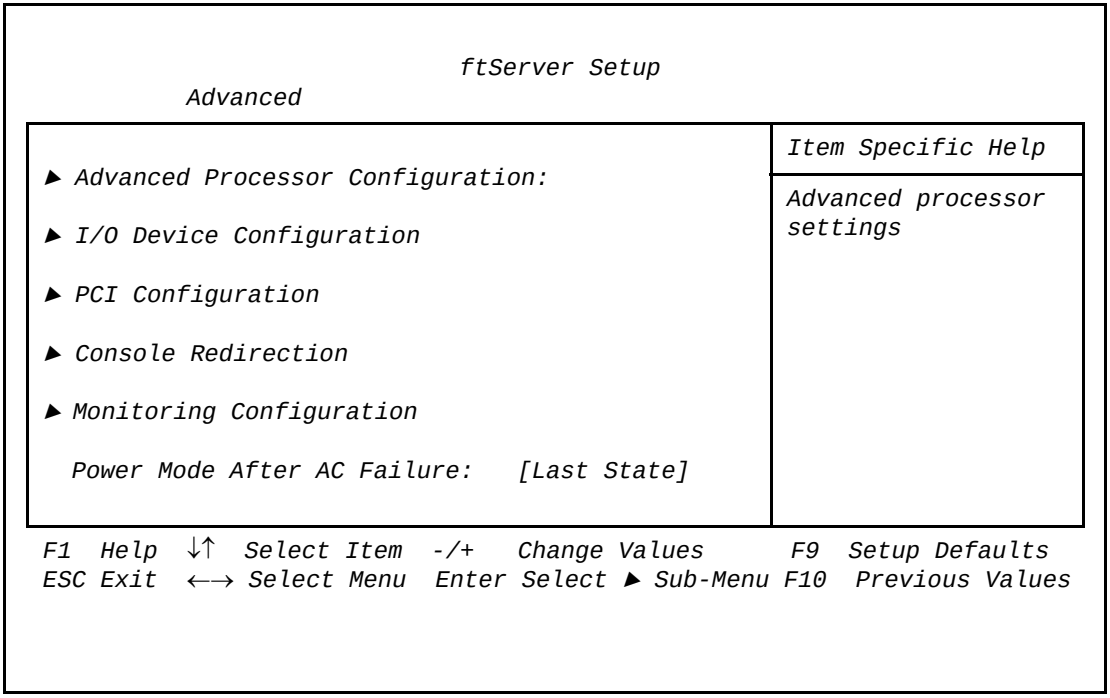
- Advanced Processor Configuration
- I/O Device Configuration
- PCI Configuration
- Console Redirection
- Monitoring Configuration

The only feature on the **Advanced** menu is Power Mode After AC Failure. This sets the system operational mode after AC power loss. Options are:

- Power On—The system powers up and reboots.
- Last State—The system returns to its last state: on or off. This is the default value.
- Stay Off—The system remains off.

Use the legend bar keys to make your selections and exit to the **Main** menu.

Figure 5-3. Advanced Menu


ftServer Setup
Advanced
▶ Advanced Processor Configuration:
▶ I/O Device Configuration
▶ PCI Configuration
▶ Console Redirection
▶ Monitoring Configuration
Power Mode After AC Failure: [Last State]
Item Specific Help
Advanced processor settings
F1 Help ↓↑ Select Item -/+ Change Values F9 Setup Defaults
ESC Exit ←→ Select Menu Enter Select ▶ Sub-Menu F10 Previous Values

Advanced Processor Configuration Submenu

Select **Advanced Processor Configuration** from the **Advanced** menu to display the **Advanced Processor Configuration** submenu, which is shown in Figure 5-4. Use the legend bar keys to make your selections and exit to the **Main** menu.

Figure 5-4. Advanced Processor Configuration Submenu

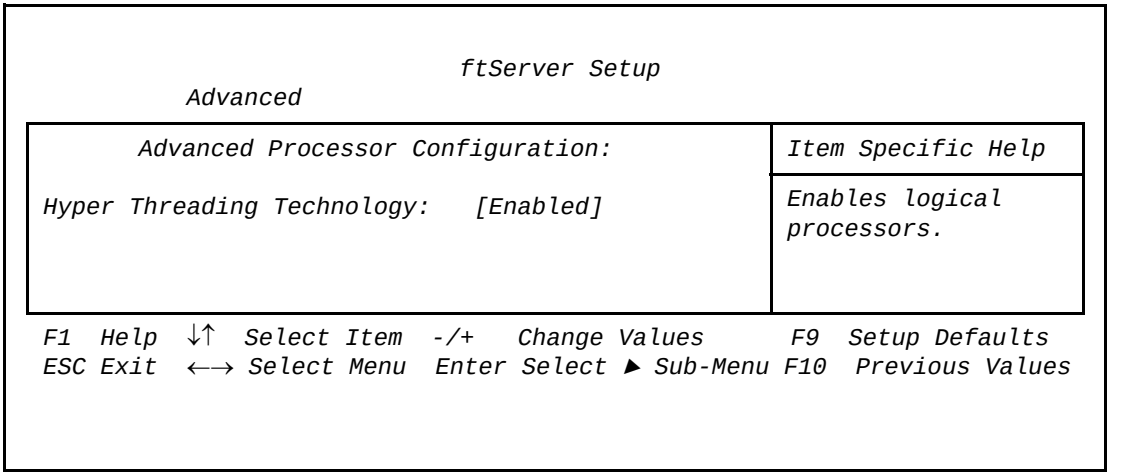

ftServer Setup
Advanced
Advanced Processor Configuration:
Hyper Threading Technology: [Enabled]
Item Specific Help
Enables logical processors.
F1 Help ↓↑ Select Item -/+ Change Values F9 Setup Defaults
ESC Exit ←→ Select Menu Enter Select ▶ Sub-Menu F10 Previous Values

Table 5-4 describes the **Advanced Processor Configuration** submenu features.

Table 5-4. Advanced Processor Configuration Features

Feature	Options	Description
Hyper Threading Technology	Enabled Disabled	Enables or disables hyperthreading. Enabled by default.

NOTE

You may need to disable hyperthreading to facilitate application execution.

I/O Device Configuration Submenu

Select **I/O Device Configuration** from the **Advanced** menu to display the **I/O Device Configuration** submenu, which is shown in Figure 5-5. Use the legend bar keys to make your selections and exit to the **Main** menu.

NOTE

The BIOS setup screens use several terms to refer to the same two serial ports:

– Serial Port 1

– Serial Port 2

Figure 5-5. I/O Device Configuration Submenu

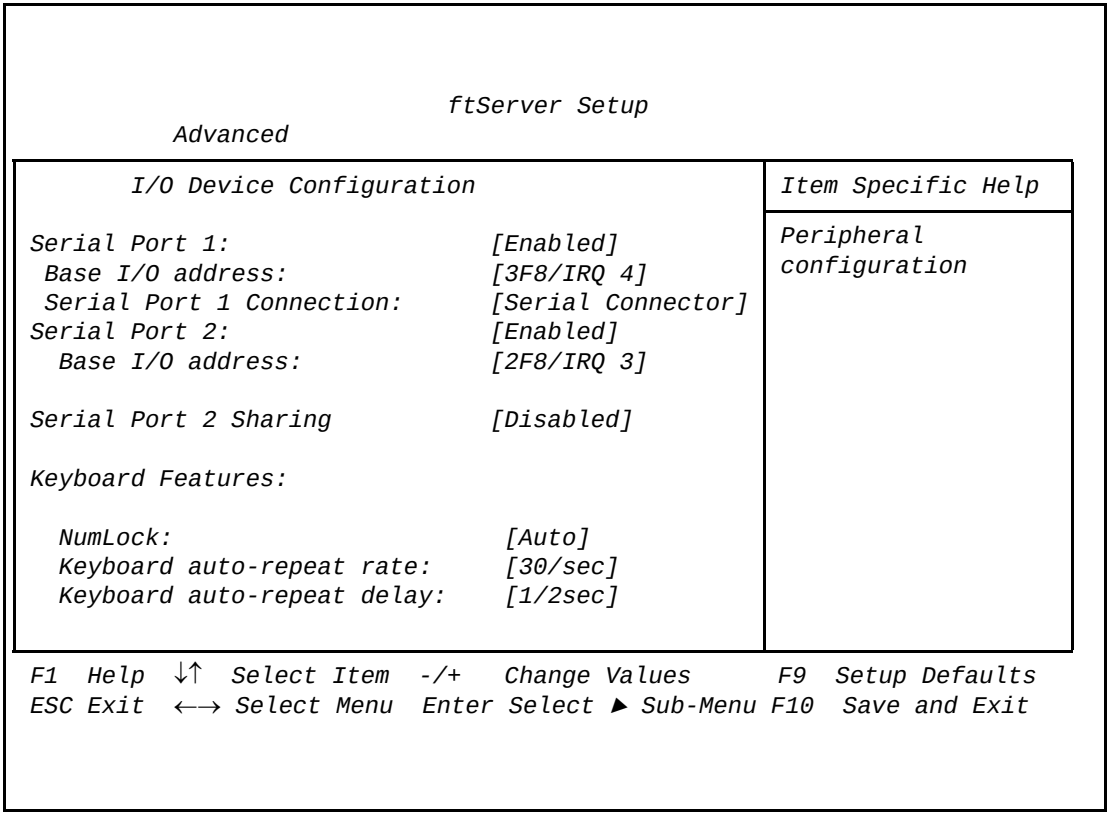

ftServer Setup
Advanced
I/O Device Configuration
Item Specific Help
Peripheral configuration
Serial Port 1: [Enabled]
Base I/O address: [3F8/IRQ 4]
Serial Port 1 Connection: [Serial Connector]
Serial Port 2: [Enabled]
Base I/O address: [2F8/IRQ 3]
Serial Port 2 Sharing [Disabled]
Keyboard Features:
NumLock: [Auto]
Keyboard auto-repeat rate: [30/sec]
Keyboard auto-repeat delay: [1/2sec]
F1 Help ↓↑ Select Item -/+ Change Values F9 Setup Defaults
ESC Exit ←→ Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit

Table 5-5 describes the I/O Device Configuration submenu features.

Table 5-5. I/O Device Configuration Features

Feature	Options	Description
Serial Port 1 Serial Port 2 Note: Serial Port 1 may not be routed to the modem if a VTM is present.	Disabled	The selected port is disabled and the serial port on the motherboard is not in use.
	Enabled	You can select the serial port I/O address and IRQ for the selected port in the setup menu.
	Auto	The BIOS or operating system chooses the configuration.

Table 5-5. I/O Device Configuration Features *(Continued)*

Feature	Options	Description
Base I/O address	3F8 IRQ 4 2F8 IRQ 3 3E8 IRQ 4 2E8 IRQ 3	Sets the base I/O address for the serial port.
Serial Port 1 Connection	Internal Modem Serial Connector	Specifies whether Serial Port 1 is used by the ASN modem or is available for general use. Do not select Internal Modem for for Serial Port 1 if the system contains VTMs.
Serial Port 2 Sharing	Enabled, Disabled	If enabled, the BMC can use Serial Port B during BIOS power-on self-test and also when the operating system is running. If disabled, the BMC can use Serial Port 2 only during BIOS power-on self-test.
NumLock	Auto (default)	NumLock is enabled at system boot if a numeric keypad is detected.
	On	NumLock is enabled at system boot.
	Off	NumLock is disabled at system boot.
Keyboard repeat rate	30/sec 26.7/sec 21.8/sec 18.5/sec 13.3/sec 10/sec 6/sec 2/sec	Sets the number of times per second the system repeats a keystroke while the user continuously presses the key.
Keyboard repeat delay	1/4 sec 1/2 sec 3/4 sec 1 sec	Sets the delay time that the system allows between the moment a key is first pressed and the moment that the system repeats the keystroke.

PCI Configuration Submenu

Select **PCI Configuration** from the **Advanced** menu to display the **PCI Configuration** submenu, which is shown in Figure 5-6. Use the legend bar keys to make your selections and exit to the **Main** menu.

Figure 5-6. PCI Configuration Submenu

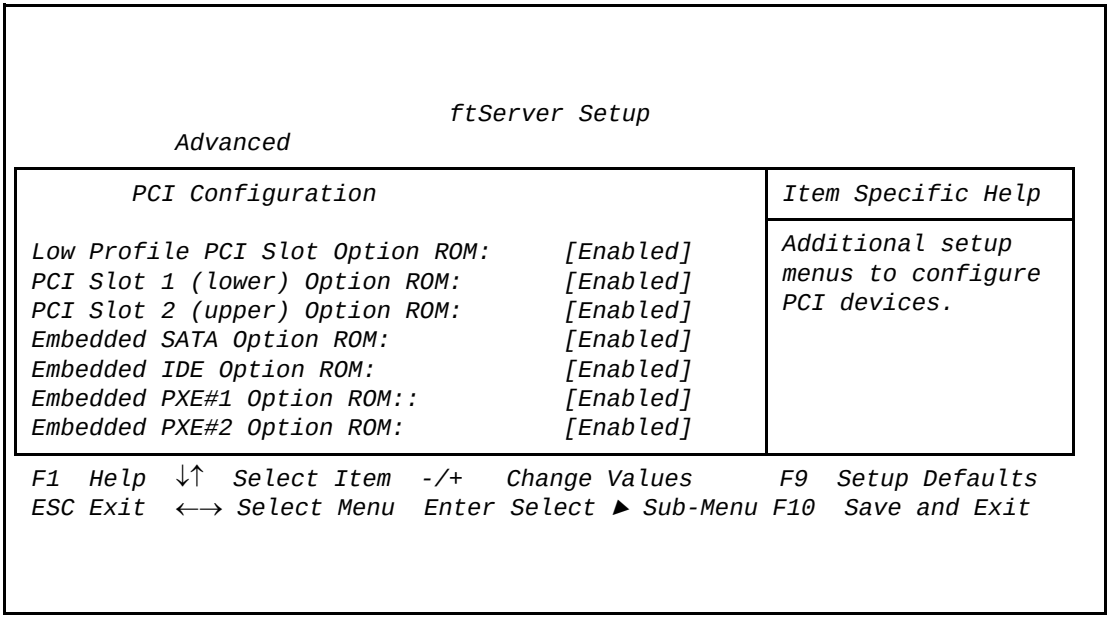

ftServer Setup
Advanced
PCI Configuration
Item Specific Help
Low Profile PCI Slot Option ROM: [Enabled]
PCI Slot 1 (lower) Option ROM: [Enabled]
PCI Slot 2 (upper) Option ROM: [Enabled]
Embedded SATA Option ROM: [Enabled]
Embedded IDE Option ROM: [Enabled]
Embedded PXE#1 Option ROM:: [Enabled]
Embedded PXE#2 Option ROM: [Enabled]
Additional setup menus to configure PCI devices.
F1 Help ↓↑ Select Item -/+ Change Values F9 Setup Defaults
ESC Exit ←→ Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit

Table 5-6 describes the PCI Configuration submenu features.

Table 5-6. PCI Configuration Features

Feature	Options	Description
Low Profile PCI Slot Option ROM	Enabled Disabled	Enables or disables the low-profile PCI slot option ROM. Enabled by default.
PCI Slot 1 (lower) PCI Slot 2 (upper) Option ROM	Enabled Disabled	Enables or disables PCI slot 1(lower) or slot 2 (upper) slot on the riser card. Enabled by default.

Table 5-6. PCI Configuration Features *(Continued)*

Feature	Options	Description
Embedded SATA	Enabled Disabled	Enables or disables the embedded SATA option ROM to boot from the device. Enabled by default.
Embedded: IDE, PXE#1, or PXE#2	Enabled Disabled	Enables or disables the embedded IDE, PXE#1, or PXE#2 option ROMs, respectively, to set up and boot from the device. Enabled by default.

Console Redirection Submenu

Select **Console Redirection** from the **Advanced** menu to display the **Console Redirection** submenu, which is shown in Figure 5-7. Use the legend bar keys to make your selections and exit to the **Main** menu.

Figure 5-7. Console Redirection Menu

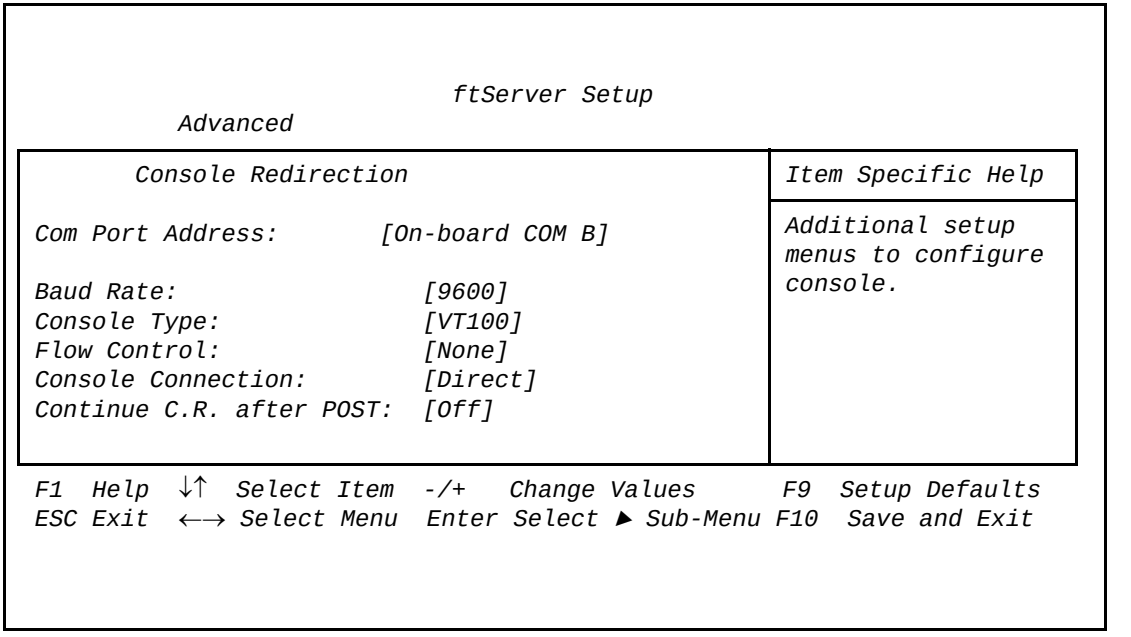

ftServer Setup
Advanced
Console Redirection
Com Port Address: [On-board COM B]
Baud Rate: [9600]
Console Type: [VT100]
Flow Control: [None]
Console Connection: [Direct]
Continue C.R. after POST: [Off]
Item Specific Help
Additional setup menus to configure console.
F1 Help ↓↑ Select Item -/+ Change Values F9 Setup Defaults
ESC Exit ←→ Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit

Table 5-7 describes the Console Redirection submenu features.

Table 5-7. Console Redirection Features

Feature	Options	Description
Com Port Address	Enabled Disabled	Enables or disables the use of the port on the motherboard. Disabled by default.
	On-board COM A On-board COM B	Redirects the console to Serial Port 1 or 2. If Console Redirection is enabled, this address must match the settings of Serial Port 1 or 2.
Baud Rate	9600, 19.2K, 38.4K, 57.6K, 115.2K	Sets the specified baud rate. 9600 by default.
Console Type	VT100 VT100, 8bit PC-ANSI, 7bit PC ANSI VT-UTF8 VT100+	Specifies the type of console. PC ANSI by default.
Flow Control	XON/XOFF CTS/RTS None	Select XON/XOFF to enable flow control, which uses the XON XOFF software protocol. XON/XOFF by default. CTS/RTS (Clear to Send/Ready to Send) enables the hardware handshake protocol.
Console Connection	Direct Via modem	Specifies that the console connects to the system either directly or by a modem. Direct by default.
Continue C.R. After POST	On or Off	Enables console redirection after the operating system has loaded.

Monitoring Configuration Submenu

Select **Monitoring Configuration** from the **Advanced** menu to display the **Monitoring Configuration** submenu, which is shown in Figure 5-8. Use the legend bar keys to make your selections and exit to the **Main** menu.

Figure 5-8. Monitoring Configuration Submenu

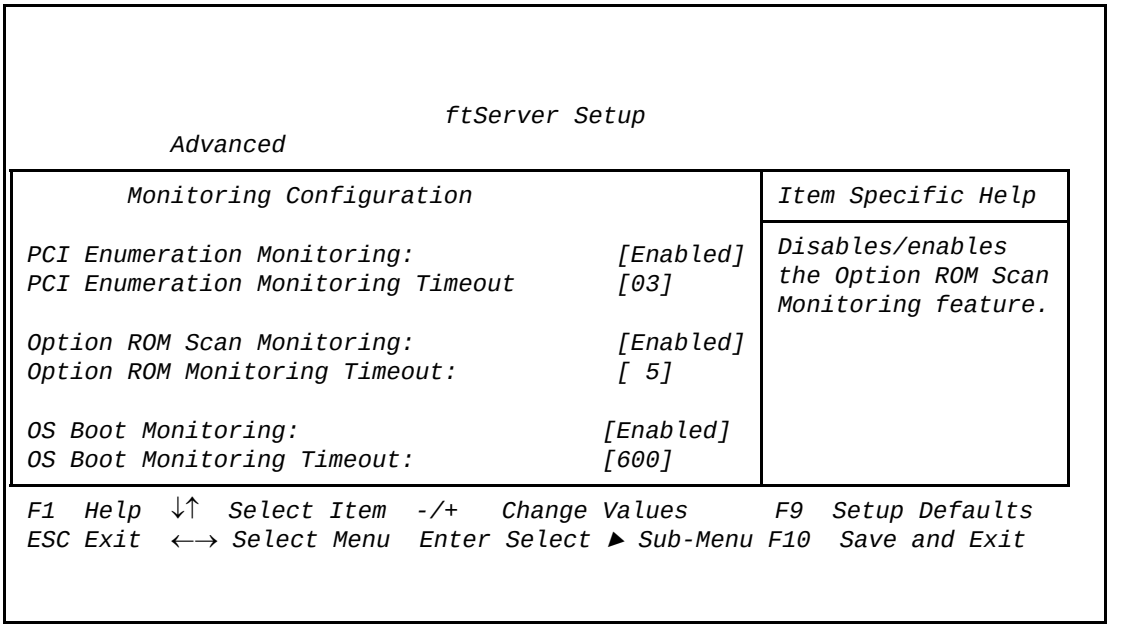

ftServer Setup
Advanced
Monitoring Configuration
Item Specific Help
PCI Enumeration Monitoring: [Enabled]
PCI Enumeration Monitoring Timeout [03]
Option ROM Scan Monitoring: [Enabled]
Option ROM Monitoring Timeout: [5]
OS Boot Monitoring: [Enabled]
OS Boot Monitoring Timeout: [600]
Disables/enables the Option ROM Scan Monitoring feature.
F1 Help ↓↑ Select Item -/+ Change Values F9 Setup Defaults
ESC Exit ←→ Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit

Table 5-8 describes the Monitoring Configuration submenu features.

Table 5-8. Monitoring Configuration Features

Feature	Options	Description
PCI Enumeration Monitoring	Enabled Disabled	Enables or disables POST PCI enumeration monitoring in BIOS.
PCI Enumeration Monitoring Timeout	180	Timeout value, in seconds, of the POST PCI enumeration monitoring. Enter this value on the keypad.
Option ROM Scan Monitoring	Enabled (default)	Enables option ROM scan monitoring.
	Disabled	Disables the Option ROM Scan Monitoring feature.
Option ROM Monitoring Timeout	60–1200 [seconds]	Sets the timeout value, in seconds, of the Option ROM Scan Monitoring feature. Enter this value on the keypad.

Table 5-8. Monitoring Configuration Features *(Continued)*

Feature	Options	Description
Boot Monitoring	Enabled (default)	Enables the BMC to monitor the boot process. This feature must be enabled for normal operation and disabled for an unattended installation.
	Disabled	Disables the boot monitoring feature. Note that the boot monitoring feature **must** be disabled if you are performing the IPL or operating system upgrade procedure on a system. For more information, see the *Express5800/320Ma: Software Installation and Configuration Guide*.
OS Boot Monitoring Timeout	Numeric values	Timeout value of the OS boot monitoring, in seconds

Security Menu

Select **Security** from the **Main** menu to display the **Security** menu, which is shown in Figure 5-9. Use the legend bar keys to make your selections and exit to the **Main** menu.

Figure 5-9. Security Menu

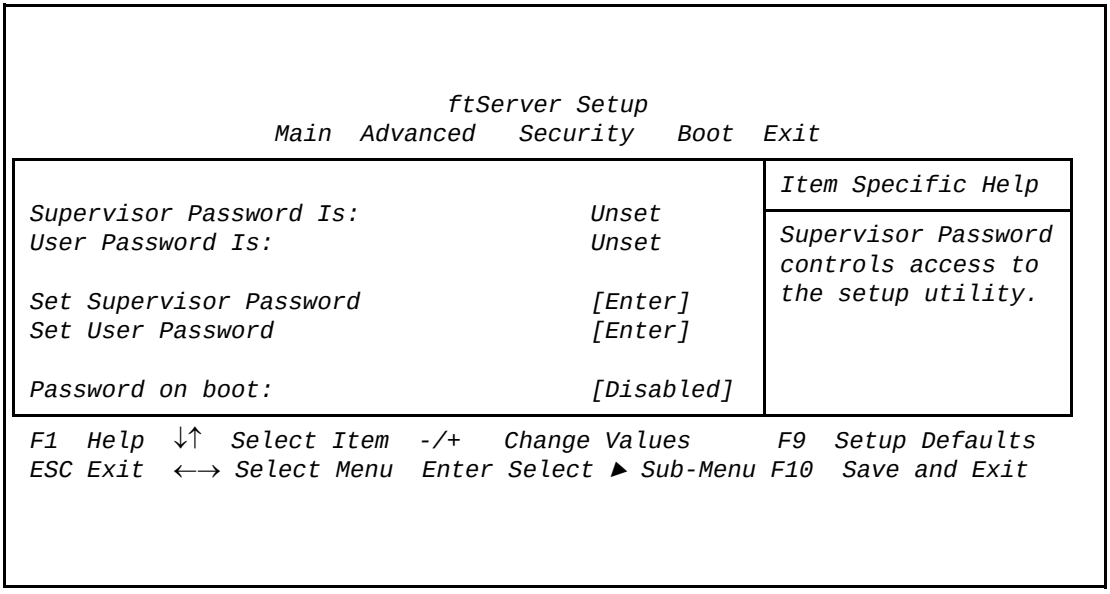

ftServer Setup
Main Advanced Security Boot Exit
Item Specific Help
Supervisor Password Is: Unset
User Password Is: Unset
Set Supervisor Password [Enter]
Set User Password [Enter]
Password on boot: [Disabled]
Supervisor Password controls access to the setup utility.
F1 Help ↓↑ Select Item -/+ Change Values F9 Setup Defaults
ESC Exit ←→ Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit

Table 5-9 describes the **Security** menu features.

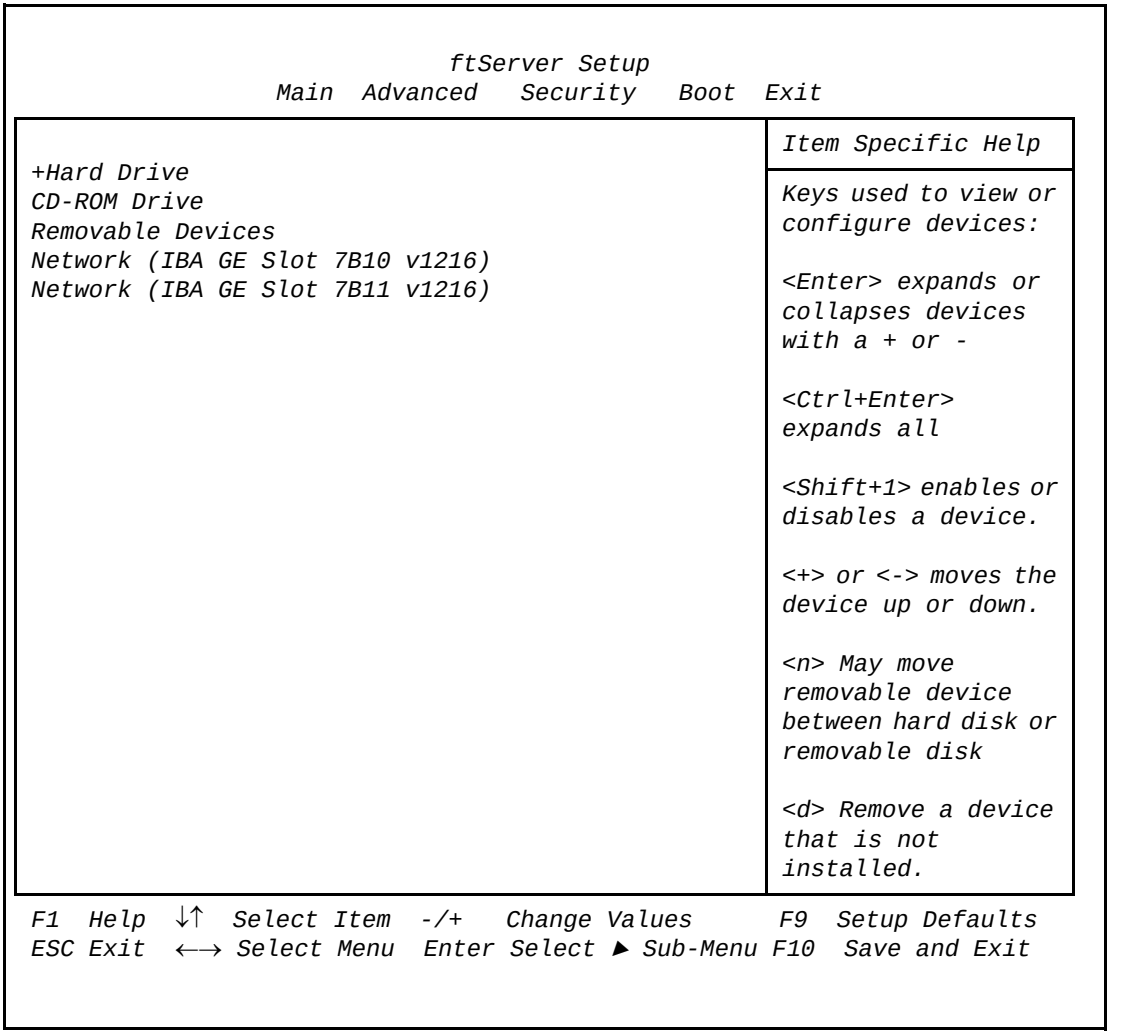
Table 5-9. Security Menu Features

Feature	Options	Description
Supervisor Password Is	Set Unset	DIsplays whether the supervisor password is set or not.
User Password Is	Set Unset	DIsplays whether the user password is set or not.
Set Supervisor Password	Enter a supervisor password	Set and confirm the supervisor password.
Set User Password	Enter a user password	Set the user password.
Password on boot	Enabled Disabled	Enables or disables the password prompt when the BIOS boots to an operating system.

Boot Menu

Select **Boot** from the **Main** menu to display the **Boot** menu, which is shown in Figure 5-10. Use the legend bar keys to make your selections and exit to the **Main** menu.

Figure 5-10. Boot Menu


ftServer Setup
Main Advanced Security Boot Exit
+Hard Drive
CD-ROM Drive
Removable Devices
Network (IBA GE Slot 7B10 v1216)
Network (IBA GE Slot 7B11 v1216)
Item Specific Help
Keys used to view or configure devices:
<Enter> expands or collapses devices with a + or -
<Ctrl+Enter> expands all
<Shift+1> enables or disables a device.
<+> or <-> moves the device up or down.
<n> May move removable device between hard disk or removable disk
<d> Remove a device that is not installed.
F1 Help ↓↑ Select Item -/+ Change Values F9 Setup Defaults
ESC Exit ←→ Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit

The **Boot** menu allows you to configure the BIOS search order for a bootable device. The menu items vary, depending on what bootable devices your system contains. The BIOS searches for an operating system by checking each device in order from the top of the list to the bottom of the list. You can move higher-level items (such as Removable Devices) and lower-level items (such as CD-ROM Drive) up and down the list to change the search sequence by using the PLUS (+) key to go up the list and the MINUS (-) key to go down the list.

Highlight the +Hard Drive option and press Enter to see the list of hard drives in the boot menu.

CAUTION

Be sure to list the hard drive first in the **Boot** menu, so that your system's boot order is set to boot from the hard disk first.

Exit Menu

Select **Exit** from the **Main** menu, or press the **Esc** key as needed from anywhere in ftServer Setup, to display the **Exit** menu, which is shown in Figure 5-11. Use the legend bar keys to make your selections and exit to the **Main** menu.

Figure 5-11. Exit Menu

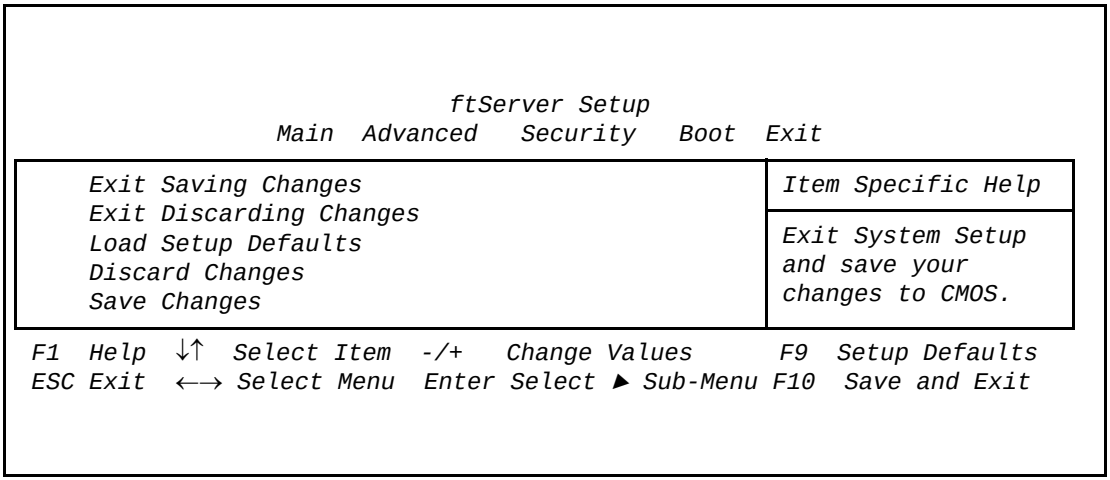

ftServer Setup
Main Advanced Security Boot Exit
Exit Saving Changes
Exit Discarding Changes
Load Setup Defaults
Discard Changes
Save Changes
Item Specific Help
Exit System Setup and save your changes to CMOS.
F1 Help ↓↑ Select Item -/+ Change Values F9 Setup Defaults
ESC Exit ←→ Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit

Table 5-10 describes the **Exit** menu features.

Table 5-10. Exit Menu Features

Feature	Description
Exit Saving Changes	Stores the menu selections in CMOS and exits the ftServer Setup utility. The system then reboots. Note that burning a new BIOS restores default settings.
Exit Discarding Changes	Exits the ftServer Setup utility without storing any changes made during the session. A Setup Warning dialog box appears after you issue this command, asking if you want to save your changes. Answer **No**.
Load Setup Defaults	Displays and loads the default values for all features.
Discard Changes	Load previous values from CMOS for all setup values.
Save Changes	Saves the displayed values for all features without exiting the ftServer Setup utility.

Summary Screen

If enabled on the **Main** menu, the Summary screen appears after the BIOS POST completes. The Summary screen shows all the BIOS configuration data.

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